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Lawrence Milton Richard

Louisiana State University and Agricultural & Mechanical College

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AN ANALYSIS OF THE RELATIONSHIP BETWEEN PERSONALITY
STRUCTURE, NEW PRODUCT AWARENESS, AND PURCHASE
BEHAVIOR IN CONVENIENCE GOODS BUYING

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
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in partial fulfillment of the
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Doctor of Philosophy

in

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by
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ABSTRACT

Over the past ten or more years there has been a large number of empirical studies which have sought to identify significant relationships between personality correlates and consumptive behavior. For the most part, however, these studies have failed to produce any significant tangible evidence relative to the relationships between the various dimensions of personality and behavior in the marketplace.

Still, there remains among students of marketing the belief that behavior in the marketplace is critically reflective of individual personality. In this light, it has been suggested that stronger relationships between existing measures of personality and purchase behavior may be found if different conceptual approaches to the relationships are taken.

The purpose of this research was twofold; first, to introduce to marketing researchers a previously unexplored paradigm for examining potential relationships between personality and consumptive behavior, and secondly, to utilize this paradigm in attempting to identify significant relationships between personality and certain aspects of purchase behavior.

The paradigm introduced represents a different conceptual perspective of individual personality. The approach taken in this research was one of viewing personality structure as opposed to personality content in attempting to find viable relationships between personality and purchase behavior. This conceptualization was drawn

from the works of Milton Rokeach. In his works, Rokeach presented the theory of personality systems developed from a structural-functional perspective.

In Rokeach's conceptualization, personality was viewed as an organized system with a definable and measurable structure. This aspect of personality structure, although not new to social psychology, has received little attention in the marketing literature.

Conceptually, personality structure is viewed as that aspect of personality which bounds the individual's personality system. The structure of any personality system may be described in terms of its relative openness or closedness. This aspect of personality is viewed as being a stable aspect of the individual's total personality system, and as existing separately from the content variables (i.e., personality traits or characteristics and types) of the personality system. In this dissertation, personality structure was treated as the independent variable and the research effort focused on its impact on new product awareness and purchase behavior patterns in the marketplace.

In the study, a sample of 200 respondents were interviewed in order to obtain the necessary data to determine if there existed any relationships between personality structure, new product awareness and purchase behavior in convenience goods buying. All elements of the research instrument had been previously used in field research efforts, thus eliminating the necessity to pretest the instrument for reliability.

The statistical method of analysis was chosen to test the stipulated hypotheses. Broadly stated, the hypothesized relationships were that there were no significant differences between open personality system individuals and closed personality system individuals relative to their new product awareness or purchase behavior patterns.

In testing the hypotheses for significant differences, non-parametric tools were utilized. These tools were selected due to the measurement strength inherent in the field instrument. Ordinal level measurement was attained, thus dictating the use of the selected nonparametric techniques.

The analysis of the data, in this particular research effort, failed to identify any significant differences between open-closed system individuals relative to their respective new product awareness or purchase behavior patterns. The analysis also failed to identify any significant relationships between a selected demographic variable and new product awareness and purchase behavior patterns in the marketplace. However, the results of the study, although inconclusive, do suggest certain future areas for continued research into the impact of personality structure or purchase behavior.

CHAPTER I

INTRODUCTION TO THE STUDY

Empirical studies over the past ten or more years attempting to identify significant relationships between personality correlates, attitudinal dimensions, and consumptive behavior have been for the most part general failures.¹ Still, there remains among students of marketing the belief that behavior in the marketplace is critically reflective of individual personality. A corollary of this belief is that the measuring instruments or statistical techniques (or both) that have commonly been used in empirical work are incapable of giving more than glimpses of the processes involved.² In this light, several researchers have suggested that stronger relationships between existing measures of personality and purchase behavior may be found if different conceptual approaches to the relationships are taken.³

The research presented in this dissertation is based on the expectations that relationships between existing measures of

¹ James F. Engel, David T. Kollat, and Roger D. Blackwell, Consumer Behavior, Holt, Rinehart and Winston, Inc., 1968, pp. 145-165.

² David Sparks and W.T. Tucker, "A Multivariate Analysis of Personality and Product Use," Journal of Marketing Research, Vol. 8, (February 1971), pp. 67-70.

³ Scott Cunningham and Robert P. Brody, "Personality Variables and the Consumer Decision Process," Journal of Marketing Research, Vol. 5, (February 1968), pp. 50-57.

personality and purchase behavior may be found if based on a different conceptual approach to the relationships, and that any conclusions minimizing the role of personality in the consumer-decision process are, perhaps, premature at this time. This research does, however, suggest a different conceptual approach to exploring the nature of the personality-purchase decision arena.

The approach to be taken is one of viewing personality structure as opposed to content in attempting to find viable relationships between personality and consumptive behavior. The distinction between structure and content may appear on the surface, to be one of little significance. However, in the psychology and social psychology literature, where marketing has drawn a vast majority of its behavioral foundation, the distinction is in no way considered insignificant. A vast amount of research, as well as controversy, has been concentrated around the "structure-content" dichotomy in attempting to construct a clearer theory and a more comprehensive understanding of individual personality and its relationship to behavior.⁴ The most comprehensive theory of personality structure appearing in the literature has been developed by Milton Rokeach.⁵

In Rokeach's theory the most important single item of distinction when viewing the structure of personality systems is the

⁴ Ralph Vacchiano, Paul Strauss, and Leonard Hochman, "The Open and Closed Mind: A Review of Dogmatism," Psychological Bulletin, April, 1969, pp. 261-270.

⁵ See Milton Rokeach, The Open and Closed Mind, Basic Books, Inc., New York, N.Y., 1960; and Milton Rokeach, Beliefs, Attitudes, and Values, Jossey-Bass, Inc., San Francisco, Cal., 1968.

realization that any identifiable personality structure cuts across specific content variables; that is, it is not uniquely restricted to any set of independent personality characteristics or traits. A clear example of what is being considered can be found in Rokeach's description of the dogmatic personality structure. He argues that when viewing structure it is not so much "what" one believes that counts, but "how" he believes.⁶ In other words, the specific content of an identifiable personality structure is of little concern to the researcher when attempting to relate personality and behavior at the structural level.

In Rokeach's theory, personality is viewed as "an existing organization of beliefs or expectancies having a definable and measurable structure."⁷ The beliefs and/or expectancies are categorized as existing at three interdependent levels (central, intermediate, and peripheral), forming the individual's "belief-disbelief" system. The central region is made up of primitive beliefs about the nature of the world and one's self. The intermediate region contains beliefs about people in general and those from whom information is sought and followed. The peripheral region is made up of all beliefs emanating from positive and negative authority figures. This "belief-disbelief" system is the crux of Rokeach's theory of personality systems.

⁶ Milton Rokeach, op. cit., p. 6.

⁷ Milton Rokeach, op. cit., p. 7.

When dealing with personality systems in this framework, the structure of the system, according to Rokeach, is defined in terms of relative openness or closedness of the system, without concern for specific content. That is, a person may adhere to communism, existentialism, or the "new conservatism" in a relatively open or in a relatively closed manner. A person may be extroverted, introverted, inner-directed, or outer-directed and still maintain a relatively open or closed personality system. Thus, as a measure of personality structure, the openness or closedness of the personality system, can be seen to cut across specific content variables.

This distinction may be made even clearer with an analogy. In attitude theory we can legitimately discuss the idea of attitude components.⁸ These components being; the cognitive component, the affective component, and the behavioral component. These components constitute the structure of any given attitude.⁹

However, in personality theory there is nothing in the theory referencing components of personality. There is no agreement concerning the components of personality.¹⁰ When discussing personality, we deal with the idea of personality content. This content does, however, exist in an organized manner. Eysenck¹¹ has

⁸ James F. Engel, David T. Kollat, and Roger D. Blackwell, op. cit., p. 166.

⁹ Ibid.

¹⁰ James F. Engel, et al., op. cit., p. 145.

¹¹ H.J. Eysenck, The Structure of Human Personality, Methuen and Company, Ltd., New York, N.Y., 1953, p. 13.

described the organization of personality content as existing in a hierarchial form which progresses from the individual's basic stimulus response behavior patterns to habitual response behavior patterns, to identifiable personality traits, and finally to describable personality types. Within this organizational scheme, the content of individual personality is formally defined as the identifiable traits or characteristics exhibited by the individual.¹²

Rokeach's theory of personality adds the dimension of structure. This idea of structure is simply defined as the "relative openness or closedness of the personality system" and cuts across all content dimensions. In theory, we are dealing with structure because there exist no agreement concerning the specific components of that structure. This, however, does not disallow for research relative to structure, as defined, and behavior. For further clarity, the reader may think of structure as that which surrounds or encloses the content of individual personality.

In the marketing literature, only two articles appear which are based on this particular distinction when dealing with personality and purchase behavior,¹³ while a single literative review article lists ninety-six references of research efforts spanning an eleven year period which concern themselves with personality content

¹² Ibid.

¹³ See Donald T. Popielarz, "An Exploration of Perceive Risk and Willingness to Try New products," Journal of Marketing Research, Vol. 4 (November 1967), pp. 368-372; and Brian Blake, "Dogmatism and Acceptance of New Products," Journal of Marketing Research, Vol. 7, (November 1970), pp. 483-487.

variables (traits or characteristics) in relation to some aspect of purchase behavior.¹⁴ From such research it can be seen that little attention has been given to viewing personality structure as a potential variable in the purchase-decision area.

STATEMENT OF THE PROBLEM

Most personality research in marketing has been unidimensional in nature focusing on content variables, while the structural aspects of personality have been largely ignored in theory and almost completely ignored in practice.¹⁵ However, there seems to be a shift in research direction toward viewing the impact of structure on behavior. This shift in research emphasis is especially evident in the area of attitude research,¹⁶ but has not been extended to the personality purchase-decision area.

This research represents an attempt to investigate such an

¹⁴ Harold H. Kassarian, "Personality and Consumer Behavior: A Review," Journal of Marketing Research, Vol. 8, (November 1971), pp. 409-420.

¹⁵ Louis K. Sharpe and Grady D. Bruce, "Components of Attitude Structure: A Comparison," in Fred Allvine (ed.), Relevance in Marketing: Problems, Research, Action, Proceedings American Marketing Association, 1971, pp. 342-345.

¹⁶ See for example, John U. Farley, John A. Howard and David Weinstein, "An Investigation of Stability in Attitude Structure Towards a Product Class," in Fred Allvine (ed.), Relevance in Marketing: Problems, Research, Action, Proceedings American Marketing Association, 1971, pp. 377-341; and Jerome E. Scott and Peter D. Bennett, "Cognitive Models of Attitude Structure: Value Importance is Important," in Fred Allvine (ed.), Relevance in Marketing: Problems, Research, Action, Proceedings American Marketing Association, 1971, pp. 346-360.

extension based on the general premise that an analysis of personality structure may prove to be significant in aiding our understanding of certain aspects of purchase behavior. The specific problem of the proposed research is to determine if personality structure, as defined by Rokeach, is a significant variable in determining product awareness and purchase behavior. Rokeach's theory of personality structure was chosen because it represents an extension, as well as, a refinement of the works of Ardono and has been researched in detail since Rokeach's major publication, The Open and Closed Mind.¹⁷

PURPOSE OF THE STUDY

This research represents an extension of an aspect of personality, which has not been explored previously in the marketing literature. On the macro level, an analysis of personality structure and consumptive behavior may aid in filling a conceptual and theoretical void which is apparently present in research in personality and its affect on purchase-behavior. The concept of structure seems viable for research along such lines because of its relatively static and unchanging nature. It offers marketing researchers interested in

¹⁷ See for example, H.J. Ehrlich, "Dogmatism and Learning," Journal of Abnormal and Social Psychology, Vol. 62, 1961, pp. 148-149; I.H. Cohen, "Adaptive Regression, Dogmatism, and Creativity," Dissertation Abstracts, No. 21, 1961, pp. 3522-3523; D. Druckman, "Dogmatism, Prenegotiation Experience, and Group Representation As Determinants of Dyadic Behavior in a Bargaining Situation," Journal of Personality and Social Psychology, No. 6, 1969, pp. 279-290; and R.E. Kleck and J. Wheaton, "Dogmatism and Responses to Opinion-Consistent and Opinion-Inconsistent Information," Journal of Personality and Social Psychology, No. 5, pp. 249-252.

personality and purchase behavior the opportunity to explore a stable aspect of personality and possibly develop a stronger theoretical base for dealing with personality and purchase behavior. An additional macro contribution may be in strengthening programs of consumer education, which, incidently, are beginning to receive a great deal of attention from diverse sectors of society.

Research into the impact of personality structure on purchase behavior also represents a viable new research direction which should be explored on the micro level, relative to specific consumer behavior problem areas. For example, research could be directed toward viewing the potential impact of personality structure on brand loyalty. Temporal and spatial dimensions of consumer shopping behavior might also be affected by personality structure. The structural dimension of personality might also be a significant variable in innovation and diffusion research, as well as other areas.

The research presented in this dissertation deals specifically with the area of product awareness and purchase behavior. If relationships can be identified between personality structure and new product awareness, and personality structure and purchase behavior, this may be a factor to be considered relative to new product success or failure in a given market segment. (It should also be pointed out that exploration of personality content has had little success at this level,¹⁸ while once again structure has been ignored.)

¹⁸ See for example, James Donnelly, Jr., "Social Character and Acceptance of New Products," Journal of Marketing Research, Vol. 7, (February 1970), pp. 111-113.

DEFINITIONS AND TERMINOLOGY

For the purposes of the research, the following definitions will be used:

DEFINITIONS

1. Personality -- The existing organization of beliefs, expectancies, temperament, intellect, and character which determine an individual's unique adjustment to the environment in which he lives.¹⁹
2. Personality Structure -- The relative openness or closedness of the personality system without concern for specific content.²⁰
3. Personality Content -- The collection of traits or characteristics exhibited by the individual.²¹
4. Personality Trait -- A correlated group of behavioral acts or action tendencies.²²
5. Personality Type -- A correlated group of personality traits. The distinction between trait and type lies in the greater inclusiveness of the type.²³
6. D-score -- The term used to describe an individual's score on Rokeach's instrument designed to measure personality structure. The score is usually characterized as being a "high D" or a "low D" referencing the relative openness or closedness of the individual personality system.²⁴

¹⁹ Milton Rokeach, op. cit., pp. 6-9.

²⁰ Ibid.

²¹ H.J. Ehrlich, op. cit., pp. 13-18.

²² Ibid.

²³ Ibid.

²⁴ Milton Rokeach, op. cit.

RESEARCH METHODOLOGY

The research in this dissertation is empirical in nature with data gathered primarily through the use of personal interviews. Secondary research sources were used to substantiate the uniqueness of the research effort and to give direction to the study.

The research is representative of what Boyd and Westfall²⁵ consider descriptive research. Such studies, as their name implies, are designed to describe or to clarify an existing situation.

In the research effort, the statistical method of analysis was utilized, as opposed to the case method, both of which are acceptable in descriptive studies.²⁶ Specifically, the research represented an attempt to identify statistically significant relationships between personality structure and new product awareness, and personality structure and purchase behavior patterns in the marketplace.

In the study, a judgemental sample of 200 respondents was utilized from the married student population residing in Louisiana State University married housing. Although research efforts in marketing have at times been criticized for using students in lieu of businessmen and students in lieu of housewives in field research, there exists no substantive basis for such criticism beyond researcher preference, and attempts to find distinct behavioral

²⁵ Harper W. Boyd, Jr. and Ralph Westfall, Marketing Research: Text and Cases, Richard D. Irwin, Inc., Homewood, Ill., 1972, p. 51.

²⁶ Ibid.

differences have proven themselves to be inconclusive.²⁷ It is, therefore, felt that the population to be sampled is behaviorally representative of housewives in general.

Prior to initiating the actual field research, a list of new grocery-store type products (available on the shelf less than one year) across several product categories (coffee, snack foods, etc.) was compiled. Grocery-store type products were used because of the frequency of their purchase in the shopping activity of the housewife. Many products in this category are purchased weekly and in some cases even more frequently. The products selected were "convenience" items. These items will be characterized by a low unit value and high turnover rate in the household assortment of grocery type products. Convenience goods were chosen as a class to maintain product consistency in the research. Products were carefully selected to avoid any influence of family branding and also to attempt to assure that they are frequently used. This procedure eliminated products such as Tide II, Clorox II and other items such as shampoos. In the final selection, six product categories were chosen (snack foods, coffee products, cooking and baking aids, quick cook dinner aids, floor care products and waxes, and wash aids, pre-soaks, and detergents). A total of seventeen individual products

²⁷ See for example, Ben M. Enis, Keith K. Cox, and James E. Stafford, "Students as Subjects in Consumer Behavior Research," Journal of Marketing Research, Vol. 9, (February 1972), pp. 72-74; and Jagdish W. Sheth, "Are There Differences in Dissonance Reduction Behavior Between Students and Housewives?," Journal of Marketing Research, Vol. 7, (May 1970), pp. 243-245.

appeared within these various categories. These products were available in all stores in the shopping areas of the population.²⁸

In the actual field research effort a short-form scale developed by Troidahl and Powell²⁹ was used to obtain the measures of personality structure. This scale appears in Appendix I and is discussed in detail in Chapter IV of this dissertation.

To obtain measures of new product awareness and purchase behavior, modified versions of the Muse and Kegerreis³⁰ measuring instruments were used. These indices are also discussed in detail in Chapter IV of this dissertation.

HYPOTHESES TESTED

The data gathered with the previously discussed measuring instruments were analyzed in order to determine if significant differences existed between high D scorers and low D scorers relative to their aided recall, unaided recall, and additional new products identified scores. These scores were also grouped to obtain a new product awareness index which was also examined for significant differences between high and low D scorers.

²⁸ The complete list of products and product categories used, along with the justification of their inclusion in this research appears in Appendix I of this dissertation.

²⁹ V. Troidahl and F. Powell, "A Short-Form Dogmatism Scale for Field Research," Social Forces, Vol. 44, 1965, pp. 211-215.

³⁰ William Muse and Robert Kegerreis, "New Product Awareness and Purchase Behavior," Marquette Business Review, Vol. 16, No. 1, 1972, pp. 19-28.

It was hypothesized that there would be no significant differences in any of these areas. Thus, the hypotheses were stated in the null form.

It was also hypothesized that no significant differences would exist between high D and low D scorers and the number of actual products purchased and that the presence of children in the family would not significantly affect either new product scores or purchase behavior scores. All of the formal hypotheses appear in Chapter IV of this dissertation and are statistically examined for significance in Chapter V.

RESEARCH LIMITATIONS

This research is, of course, subject to certain criticisms and limitations. One criticism of the research is that it concerns itself with a general area that has been virtually fruitless in past marketing research efforts, namely personality and consumer behavior. A more than adequate rebuttal that can be offered to this criticism is that this research deals with an aspect of personality that has yet to be explored in the marketing literature.³¹

Another limitation of the research lies in the utilization of personal interviews as the method of data collection. There is always the probability of getting response bias when interviewing

³¹ James F. Engel, David T. Kollat, and Roger D. Blackwell, Consumer Behavior, Holt, Rinehart and Winston, Inc., New York, N.Y., 1968, p. 179.

respondents.³² Cannell and Kahn point out, however, that much experience indicates that such limitations on interview subject matter are not to be rigidly assumed.³³ Thus, in this research the verbal behavior of the respondent was accepted as being truthful.

ORGANIZATIONAL PLAN OF THE STUDY

This dissertation is comprised of six chapters. Chapter I is divided into nine sections: introduction to the study, statement of the problem, purpose of the study, definitions and terminology, research methodology, hypotheses to be tested, research limitations, and organization of the study.

Chapter II reviews the significant literature in personality and purchase behavior related to this study. This chapter attempts to set up a frame of reference for the remainder of the dissertation and the literature reviewed substantiates the need to utilize a different conceptual base for exploring relationships between personality and purchase behavior.

Chapter III presents the theory of open-closed personality systems as advanced by Milton Rokeach. This theory of personality

³² See for example, Claire Selltitz, Marie Jahoda, Morton Deutsch, and Stuart W. Cook, Research Methods in Social Relations, Holt, Rinehart and Winston, Inc., New York, N.Y., 1959, p. 311; and Robert D. Buzzell, Donald F. Cox, and Rex V. Brown, Marketing Research and Information Systems: Text and Cases, McGraw-Hill Book Company, Inc., New York, N.Y., 1969, p. 151.

³³ Charles F. Cannell and Robert L. Kahn, "The Collection of Data by Interviewing," in Research Methods in The Behavioral Sciences, edited by Leon Festinger and Daniel Katz, Holt, Rinehart and Winston, Inc., New York, N.Y., 1953, p. 331.

provides the unique conceptual base for analyzing the relationship between personality and purchase behavior proposed in this dissertation. A review of the pertinent literature concerning the theory of open-closed personality systems is also presented.

Chapter IV is devoted to the description of the research methodology utilized in the study. This chapter reviews the data collection procedure and presents the tools of analysis to be employed in Chapter V.

Chapter V presents the analysis of the empirical data generated from the investigation of the hypothesized relationship between personality structure and purchase behavior. Chapter VI serves to summarize the research effort, to draw conclusions relative to the research effort and make recommendations for further study in the area.

CHAPTER II

A REVIEW OF PERSONALITY AND PURCHASE- BEHAVIOR RESEARCH

There exists a wealth of literature in the field of consumer behavior, and, as interest in the study of consumer behavior has increased, this literature base has been rapidly expanding.¹ The purpose of this literature review is threefold: (1) to illustrate the current state of research in the area of personality and purchase behavior; (2) to show the various directions that research in personality and purchase behavior has taken; and (3) to summarize the results of research which has concerned itself with the impact and relative importance of personality in the study of purchase behavior.

In order to place boundaries upon the literature to be reviewed, the researcher has selected literature in terms of the purposes set forth above. It should also be noted that the literature reviewed in this chapter is not intended to represent an exhaustive review of the

¹ For several reviews of the literature pertaining to consumer behavior see: Steuart Henderson Britt, Consumer Behavior in Theory and in Action, John Wiley and Sons, Inc., New York, N.Y., 1970; Steuart Henderson Britt, Consumer Behavior and the Behavioral Sciences-Theories and Applications, John Wiley and Sons, Inc., New York, N.Y., 1966; James F. Engel, David T. Kollat, and Roger D. Blackwell, Consumer Behavior, Holt, Rinehart, and Winston, Inc., New York, N.Y., 1968; James F. Engel, David T. Kollat, and Roger D. Blackwell, Research in Consumer Behavior, Holt, Rinehart, and Winston, Inc., New York, N.Y., 1970; Francesco M. Nicosia, Consumer Decision Processes, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1966, Chapters 2, 3, and 4; Harold H. Kassarian and Thomas S. Robertson, Perspectives in Consumer Behavior, Scott, Foresman and Company, Glenview, Ill., 1968.

research dealing with personality and consumer behavior, but only that research which has included one or more personality inventories to measure a specific personality trait or group of traits in relation to some aspect of purchase behavior.

In Chapter I of this dissertation, it was suggested that most, if not all, of the research dealing with personality and purchase behavior has provided few significant results. This chapter will review the research into personality and purchase behavior, within the above defined limits to determine if this contention can be substantiated.

The literature to be reviewed in this chapter will be broadly classified into three areas: (1) personality trait and buyer behavior research; (2) personality and product-brand preference research; and (3) personality and adoption and diffusion of new product research. This classification, given the previously described limitations, will allow the researcher to give consideration to the critical literature dealing with personality and purchase behavior.

Following this review of the personality and purchase behavior literature, Chapter III will present Rokeach's theory of personality systems as a unique paradigm for analyzing potential relationships between personality and purchase behavior. This chapter will also include a review of the literature which is felt to be pertinent to marketing researchers exploring personality and purchase behavior within the framework of Rokeach's theory. Specifically, the literature which will be reviewed in Chapter III will deal with

the impact of dogmatism on learning and problem solving, the impact of dogmatism on individual perception, and the impact of dogmatism on the maintenance of cognitive consistency.

In capsulizing the literature, efforts will be concentrated on reviewing the purposes of the research, hypotheses or conceptual constructs being reviewed, and research results. Methodologies utilized in the research to be reviewed (sampling procedures, statistical techniques of analysis, simulation, etc.) will be briefly described but will not be dealt with in any depth. It will be assumed that other researchers are methodologically competent, and that it is unnecessary to question techniques in detail when one is reviewing research findings in a work of this nature.²

PERSONALITY TRAIT AND BUYER BEHAVIOR RESEARCH

The concept of personality traits, factors, or variables has led to virtually dozens of studies in consumer behavior.³ The core of personality trait theories lies in the belief that personality is composed of a set of traits, some general and others specific to a particular situation, that can be identified and quantitatively measured.

² Most all of the literature to be reviewed in this chapter has been conducted by respected marketing academicians, and published in respected marketing and related social science journals. Therefore, one should be able to assume methodological competence on the researchers part.

³ Harold H. Kassarian, "Personality and Consumer Behavior: A Review," Journal of Marketing Research, Vol. 8, (November 1972), pp. 409-420.

In marketing, a number of studies have attempted to relate specific personality traits to acts of purchase behavior or have attempted to identify personality traits common to users of particular products or services. The following literature is representative of such attempts to relate specific personality traits to acts of purchase behavior.

In one of the earliest attempts to identify the existence of some relationship between personality characteristics and purchasers, Koponen conducted an extensive study in conjunction with the J. Walter-Thompson Company.⁴ The study was begun in 1956, and utilized over 5000 families throughout the United States. The purpose of the study was to determine if personality traits, as identified by the Edwards Personal Preference Test,⁵ could be utilized to predict purchases of particular products.

In conducting the research, Koponen used a permanent panel of research participants and continuously gathered information relative to family income, family composition, ages of household members, education, occupation, the products they purchased, how often and where they purchased, what they owned, the magazines they read, the television shows they watched and so on. Given these efforts, this study represented one of the most comprehensive attempts to research personality traits and purchase behavior to appear in the literature.

⁴ Arthur Koponen, "Personality Characteristics of Purchasers," Journal of Advertising Research, Vol. 1, (September 1960), pp. 6-12.

⁵ A. L. Edwards, Personal Preference Schedule Manual, Psychological Corporation, New York, N.Y., 1954.

The Edwards Personal Preference Test, which measures fifteen psychological characteristics (see Table 2.1) was administered to the panel and completed by 8,963 respondents representing 89 percent of male household heads and 97 percent of female household heads, making up the panel. Relationships were examined between personality traits and purchase behavior in over a dozen fields, ranging from consumer durables to groceries.⁶ However, in reporting the research, only results relative to adult male smoking habits and magazine readership were reported due to the length of the original study.

Utilizing multiple regression procedures, which permitted holding a large number of factors constant while examining the influence of individual factors, Koponen was able to determine the amount of variation which could be attributed to each of the fifteen psychological variables. Although the use of multiple regression and correlation techniques might be considered quite naive in a study of this nature and magnitude, when one considers the time period of the actual research and the state of behavioral research methods at the time, little room is left to be critical of the statistical techniques chosen by Koponen to analyze the data gathered.

In reporting the results it was shown that the average male smoker scored significantly higher in his expressed needs for sex,

⁶ Koponen, op. cit.

TABLE 2.1

PSYCHOLOGICAL CHARACTERISTICS MEASURED BY THE
EDWARDS PERSONAL PREFERENCE TEST

Achievement:	To rival and surpass others, to do one's best, to desire prestige, accomplishment, ambition, success.
Compliance:	To accept leadership, to follow willingly, to let others make decisions, submission, deference, conformity.
Order:	To have things arranged, to be organized, to be clean, tidiness, neatness, organization.
Exhibition:	To be the center of attention, to have others notice you, to make an impression on others, vanity and self dramatization.
Autonomy:	To seek freedom, to resist influence, to defy authority and coercion, independence and freedom.
Association:	To form friendships and associations, to participate in groups, to do things with others, affiliation and companionship.
Analysis:	To understand others, to examine motives, to analyze your own behavior, understanding and introspection.
Dependence:	To seek aid, to be helped by others, to be guided and advised, helplessness.
Dominance:	To control others, to be a leader in groups, to influence others, control and supervision.
Self Depreciation:	To feel inferior to others, to accept blame, to accept punishment, masochism and shame.
Assistance:	To help others, to be sympathetic, to protect others, helpfulness and support.
Change:	To do new things, to do different things, to change daily routine, variety and novelty.
Endurance:	To stick at a task, to work hard at a job, to complete anything undertaken, persistence and toil.

TABLE 2.1 (cont.)

Hetero- sexuality:	Willingness to talk about sex, to be attracted to the opposite sex, to go out with the opposite sex, love and desire.
Aggression:	To attack, assault or injure, to belittle, harm, blame, to punish.

Source: A. L. Edwards, Personal Preference Schedule Manual, Psychological Corporation, New York, N.Y., 1954.

aggression, achievement, and dominance than the average U.S. male.⁷ Personality traits were shown to be different not only between product purchasers and non-purchasers, but also between buyers of different types of similar products. For example, filter cigarette smokers scored higher than non-filter smokers on dominance, change, and achievement, and lower on aggression, self-depreciation, and autonomy.⁸

In attempting to differentiate magazine readership patterns utilizing personality traits, the research pointed out that readers of magazine A (unidentified in the research) were much higher in their expressions of dominance and sex, than were readers of magazine C. Readers of magazine C, on the other hand, expressed greater needs for dependence, assistance and order.

In evaluating the research Koponen points out that, although

⁷ Ibid.

⁸ Ibid.

smoking habits and magazine readership patterns could be successfully differentiated utilizing psychological characteristics, the overwhelming amount of purchase variation in these product categories remained unexplained.⁹ In fact, across the population being studied, a maximum of 13 percent of the total variance was explained by psychological traits in any product category.¹⁰

In summarizing this early attempt to relate personality traits and purchase behavior patterns, Koponen pointed out that the products being studied and the amounts purchased were apparently influenced more strongly by other factors - psychological, social, or other measures more specific than personality traits alone.¹¹ Unfortunately, Koponen did not elaborate on the nature or potential impact of these variables.

Overall, this early study should be viewed as one of the more comprehensive studies attempting to relate personality traits and purchase behavior. The reported results pointed out that any relationship which might exist between identifiable personality traits and acts of purchase behavior should be viewed with caution.

The early results of such empirical studies and the pessimistic conclusions offered did not slow the efforts of marketing researchers. Taking the same data base as the Koponen study, the

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

Advertising Research Foundation attempted to determine if any relationship existed between personality and paper products purchases.¹² Utilizing the paper products purchase data from the Koponen study, the Advertising Foundation researchers attempted to study brand loyalty, quantities purchased, and choice between various kinds of paper product groupings. Using the same statistical procedures, the researchers were able to raise the percentage of variance explained (R^2) above 7 percent in only one equation.¹³ This particular equation explained 12 percent of the variance from the revelation that large families use more toilet paper. In summary, the research reached similar conclusions as the Koponen study, namely that personality was an inadequate variable to use in attempting to identify or predict patterns of purchase behavior.¹⁴

In another study which also used the Koponen data, Brody and Cunningham¹⁵ attempted to show that personality variables could predict purchase behavior if approached from a different theoretical perspective. Brody and Cunningham analyzed the Koponen data working under the assumption that personality variables would more accurately predict patterns of purchase behavior where there exists

¹² Advertising Research Foundation, Are There Consumer Types, 1964.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Robert P. Brody and Scott M. Cunningham, "Personality Variables and the Consumer Decision Process," Journal of Marketing Research, Vol. 5, (February 1968), pp. 50-57.

high perceived performance risk and high perceived specific self-confidence.¹⁶ Performance risk was defined in terms of the individual's perceptions relative to the performance of various brands (i.e., to what extent does the person think different brands perform differently).¹⁷ Specific self-confidence was defined in terms of the individual's certainty that selected brands would perform as expected (i.e., how certain is the person that the selected brand would perform as expected).¹⁸ This assumption was an outgrowth of previous research by Cunningham in which it was demonstrated that individuals tended to concentrate a very high percentage of their purchases on one brand where there existed high perceived functional risk.¹⁹

In effect, the hypothesis being tested was that personality variables could differentiate between purchasers of various brands of a product where brand loyalty was relatively high.²⁰ Applying this line of reasoning to the Koponen data, the researchers chose to utilize the coffee products purchase data for analysis. It was felt by the researchers that coffee represented a product group in

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Scott M. Cunningham, "The Role of Perceived Risk in Product Related Discussions and Brand Commitment," Doctor of Business Administration Thesis, Harvard University, 1965.

²⁰ Ibid.

which selection was highly subjective, high performance risk was present, and that coffee users had high self-confidence in their ability to judge coffees.²¹ In their selection of coffee brands, Brody and Cunningham utilized Chase and Sanborn and Folgers purchasers for their quantitative analysis because these groups appeared to have the greatest difference in personality scores. A two-brand regression equation was computed using these two groups. Users who concentrated 40, 50, 60, 70, 80, 90 and 100 percent of their regular coffee purchases on one of the two brands were examined successively. If the reasoning being used relative to brand loyalty and personality variables was correct, it was felt that the amount of explained variance should increase with the stringency of the brand loyalty requirement. In the research, the equations performed as expected and explained variance reached 32 percent when only the 100 percent brand loyal people were compared. This variance was explained by eight personality variables alone (need-exhibition, need-dependence, need-depreciation, need-assistance, need-dominance, need-heterosexual, need-analysis, and male need dominance) and when two demographic variables (city size and income) were added, the explained variance rose to 36 percent.²²

Since the main objective of this research was predicting discrete groups and not analysis of explained variance, a two-brand discriminant analysis was also done. This analysis was an attempt

²¹ Ibid.

²² Ibid.

to determine how good the discrimination was in the percentage of buyers matched correctly with brand. The multiple discriminant analysis was done for 63 people concentrating 100 percent of their purchases with Folgers, and 45 people concentrating over 50 percent of their purchases with Chase and Sandborn. Utilizing this technique, the researchers found that discriminant analysis was able to accurately identify 80 percent of the brand choices in the 100 percent loyal group and 50 percent of the brand choices in the 50 percent loyal group.²³

In concluding their research, Brody and Cunningham point out that the study of a single product (coffee) cannot come close to validating their proposed theoretical framework. They point out that in order to predict which personality variables lead to actual purchases of one brand of coffee would require a study of the images engendered by the taste, package, advertising, distribution patterns, and history of that brand.²⁴ Such efforts were beyond the scope of the Brody and Cunningham study, and the authors suggested that attempts should be made to aid in clarifying the existence of relationships between personality variables and purchase behavior.²⁵

The Koponen study and the various research efforts generated from the availability of the J. Walter Thompson panel data represent attempts to relate specific personality variables to acts of purchase

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

behavior or to purchase patterns. These research efforts and their findings gave impetus to marketing researchers involved in studying personality and purchase behavior to move to a more micro-perspective. Research findings began to appear which attempted to relate a single personality trait, or a small number of traits, to purchase behavior. These efforts sought to identify single critical relationships between personality traits and purchase behavior as opposed to the mass application of personality profiles to large populations, seeking any relationship that would prove statistically significant.

Taking this micro-oriented approach, Cox and Bauer²⁶ attempted to establish the existence of a relationship between generalized self-confidence (a personality trait which is analogous to self-esteem) and persuasibility in women. The basic premise of this study being that women who scored low in generalized self-confidence would be more easily swayed by marketing communications in their purchase decisions. In conducting the research, a total of 297 lower and middle class housewives were used. These subjects were randomly separated into three groups of 99 members each. The subjects in each group were asked to evaluate "two" brands of nylon stockings and to select the one they felt was the better of the two. The nylon stockings were identical, except for identifying letters R and N. After making their evaluations, subjects heard a tape of a "salesgirl's" opinion that Brand R stockings were better. Subjects

²⁶ Donald F. Cox and Raymond A. Bauer, "Self-Confidence and Personality in Women," Public Opinion Quarterly, Vol. 26, (Fall, 1962), pp. 453-466.

were then asked to re-evaluate the nylons, indicate how confident they were of their choices, and complete the test which measured generalized self-confidence. This test consisted of nine items from the Janis and Field²⁷ measure of feelings of inadequacy. These nine items have been used to measure generalized self-confidence in a number of behavioral research experiments over time.²⁸ Given the scores of generalized self-confidence, the subjects were ranked as to high, medium, and low levels of self-confidence. The researchers also had, as was previously noted, gathered data relative to stocking choice before and after the interjected message by the "salesgirl".²⁹ Table 2.2 shows the results of the researchers data comparisons. A positive change represents a change which favors the position taken by the taped message. In this instance, when a subject changed her choice from brand N to brand R (the message advocated brand) she was exhibiting a positive change. A negative change indicates a decision where the subject reacted negatively to the message and switched her choice away from the brand advocated by the taped message, from brand R to brand N. As can easily be seen, the data does not support the basis proposition of the research effort. In fact, those subjects low in self-confidence, who should have exhibited greater

²⁷ I. L. Janis and P. B. Field, "Sex Differences and Personality Factors Related to Persuasibility," in Hovland and Janis, eds., Personality and Persuasibility, Yale University Press, New Haven, Conn., 1959, pp. 56-68.

²⁸ Hovland and Janis, op. cit.

²⁹ Ibid.

TABLE 2.2

CHANGE IN EVALUATION IN RELATION TO FEELINGS
OF GENERALIZED SELF-CONFIDENCE
(in percent)

Degree of General- ized Self-confidence	Change in Evaluation			
	Positive	None	Negative	Total
High	45	42	13	100
Medium	62	27	11	100
Low	37	34	29	100

Source: Donald F. Cox and Raymond A. Bauer, "Self-Confidence and Persuasibility in Women," Public Opinion Quarterly, Vol. 26, (Fall, 1962), pp. 453-466.

positive changes in their evaluations, actually exhibited a lower percent of positive change and a much higher percent of negative change.

In summarizing their research effort, the authors point out that the expected simple negative correlation between self-confidence and persuasibility in women was not substantiated in this research. They suggest that this might have been due to the existence of some "defense mechanism" or the desire to be correct on the part of those subjects exhibiting low self-confidence in a laboratory setting. The authors suggest that further research is needed before any conclusions are drawn.

The inconclusive results of the Cox and Bauer research spurred

further research efforts in the same area. Vankatesan³⁰ engaged in a similar research effort, adding social influence as a variable in his effort to identify a relationship between self-confidence and persuasibility in consumer decision making. A controlled laboratory experiment was utilized in evaluating the hypothesis that a relationship existed between self-confidence and persuasibility in a social influence situation.³¹ In this experiment, subjects were asked to evaluate and choose the "best" suit among three identical men's suits designated A, B, and C. A control and an experimental condition were created. The control group of subjects were given a specified time to examine the suits and make a choice which was recorded. The experimental group was given the same time period but were asked to announce their choice in a face-to-face group consisting of three confederates of the researcher and one naive subject. The confederates had been told to choose suit B as the best suit. All subjects completed the Janis and Field³² measure to determine their level of self-confidence. All subjects were students in the School of Business Administration at the University of Minnesota.

In reporting the results, it was shown that suit choice in the control group did not deviate significantly from a chance

³⁰ M. Vankatesan, "Personality and Persuasibility in Consumer Decision Making," Journal of Advertising Research, Vol. 8, No. 1., (March 1968), pp. 39-45.

³¹ Ibid.

³² Janis and Field, op. cit.

distribution. In the experimental group, however, the proportion of choices for B was significantly greater with a Z value of 2.5 ($p < .01$).³³ Thus, social influence was a significant factor in the experimental group. Self-confidence scores were then compared among subjects in this group. This comparison yielded a chi-square value of 3.6 (1 d.f.) which was not significant at the .05 level. These results were in agreement with the Cox and Bauer study and Vankatesan reported no significant relationship between the personality trait of self-confidence and persuasibility in a social influence situation.³⁴

Given the two research extremes previously described (mass application of personality inventories to large groups versus identification of single traits in attempting to identify relationships between personality and purchase behavior) and the inconclusiveness of the research findings, marketing researchers began to move away from the application of personality profiles in attempting to isolate relationships between personality and purchase behavior in general. Research efforts were re-directed in attempts to isolate relationships between personality and more concrete marketing related phenomenon, such as the development of brand loyalty and brand preferences.

³³ Ibid.

³⁴ Ibid.

PERSONALITY AND PRODUCT-BRAND PREFERENCE RESEARCH

The attempts of marketing researchers to identify relationships between personality and brand preference resulted from several factors. First, marketing researchers saw the emergence of statistical analysis applied to the concept of brand loyalty or preference. A number of studies began to identify this area of marketing as one which might be easily quantifiable and which might yield significant results.³⁵ Secondly, marketing researchers had already attempted to find relationships between personality traits and purchase behavior and they recognized the possibility of narrowing their research efforts to a more concrete aspect of purchase behavior, that of brand loyalty.

In an early attempt to establish the existence of a relationship between personality and brand preferences, Myers³⁶ ran across problems similar to those of researchers in personality trait and purchase behavior. In a field study of working and non-working wives, Myers attempted to establish a relationship between private brand attitude (P.B.A.) and selected psychological variables. Utilizing a sample of 347 (181 working women and 166 non-working women)

³⁵ For examples of such studies see: Ross M. Cunningham, "Consumer Loyalty to Store and Brand," Harvard Business Review, Vol. 39, (December 1961), pp. 127-137; John Farley, "Why Does Brand Loyalty Vary Over Products," Journal of Marketing Research, Vol. 1, (November 1964), pp. 9-14; and Ronald Frank and Harper Boyd, "Are Private-Brand-Prone Consumers Really Different?," Journal of Advertising Research, Vol. 5, (December 1965), pp. 27-35.

³⁶ John G. Myers, "Determinants of Private Brand Attitude," Journal of Marketing Research, Vol. 4, (February 1967), pp. 73-81.

private brand attitude was measured by a rating instrument that asked the respondent to rate 29 national and private brands according to the frequency with which each brand would probably be used.³⁷ Fourteen brands in the list were private brands and a summation of the rating scores for these 14 brands was used as a measure of private brand attitude. To develop the psychological profiles, Cattell's 16 Personality Factor Inventory, Form A³⁸ was utilized. Form A of this personality inventory measures eight personality traits (sociable, stable, dominant, sensitive, enthusiastic, tense, radical, and self-sufficient) which were selected to be analyzed as potential determinants of private brand attitudes.

In the analysis, Myers utilized a series of regression analyses in which the personality variables were used as predictors of independent variables, with private brand attitude as a criterion as dependent variable. Table 2.3 shows the results of the step-wise multiple regression analysis of the eight traits regressed against private brand attitude.

As can be seen, enthusiasm is the strongest of the eight predictors. In the analysis this variable yielded a beta weight of $-.251$, and was significant well beyond the $.01$ level. The data

³⁷ Ibid.

³⁸ Raymond Cattell and Glen Stice, Handbook of the Sixteen Personality Factor Inventory, The Institute for Personality and Ability Testing, Champaign, Ill., 1957.

³⁹ Ibid.

TABLE 2.3

BETA COEFFICIENTS FOR CATTELL PERSONALITY
TRAITS AND PRIVATE BRAND ATTITUDE
(N = 208)

Personality trait	All predictors	Best predictors
Sociable	.088	.086
Stable	.037	--
Dominant	.130	.132
Enthusiastic	-.251	-.248
Sensitive	-.132	-.133
Tense	-.063	-.074
Radical	.007	--
Self-sufficient	.092	.092
R	.197	.217

Source: John G. Myers, "Determinants of Private Brand Attitudes," Journal of Marketing Research, Vol. 4, (February 1967), p. 79.

analyses suggests that women who are enthusiastic, sensitive, and submissive tend to be more prone to purchase private brands.

However, as is indicated by the multiple regression coefficient of .217, $R^2 = .047$, the predictive power of the personality variables, even the best combinations, is very low. Less than five percent of the total variance in the criterion is explained by the

personality predictors in either the all-predictor or best-predictor case.⁴⁰

In summarizing the research, Myers points out that the apparent inconsistency between the identification of patterns of differential private brand attitudes and the low predictive power of psychological determinants, suggests the need for further theoretical and empirical investigation of the relationship between personality and brand preference.⁴¹

The call for continued empirical research in this area by Myers and other marketing researchers promulgated continued research efforts. Vitz and Johnston⁴² attempted to relate the traits of masculinity-femininity to cigarette purchases and brand loyalty. Basing their research on the previous works of Martineau,⁴³ Vitz and Johnson were working under the basic assumption that product image is a symbol of buyer personality and that brand choices, being the expression of the self, are important indices of buyer personality. The personality trait of masculinity-femininity was selected because Martineau had mentioned it as an important dimension of measuring for cigarette brands and because existing personality tests included

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Paul C. Vitz and Donald Johnston, "Masculinity of Smokers and the Masculinity of Cigarette Images," Journal of Applied Psychology, Vol. 49, (June 1965), pp. 155-159.

⁴³ Pierre Martineau, Motivation and Advertising, McGraw-Hill Book Company, New York, N.Y., 1957.

well documented masculinity-femininity scales.⁴⁴ The specific experimental hypothesis in the research effort was that the more masculine the personality of the smoker, the more masculine the image of the smoker's regularly purchased and smoked cigarette.⁴⁵

All subjects used in the research were college students between the ages of 18 and 22. Four categories of subjects were used in analyzing the data: male smokers, female smokers, male nonsmokers, and female nonsmokers. Nonsmokers were used in the study to determine how their masculinity ratings and cigarette ranking compared to smokers ratings.

Thirteen common brands of cigarettes were used and were grouped into three categories according to major product differences. The categories were: (a) nonfilter cigarettes, (b) filter cigarettes, and (c) filter cigarettes containing additives such as menthol and mint.

In measuring the personality trait, two measures of masculinity-femininity were used. The Fe (femininity) scale of the California Psychological Inventory⁴⁶ and the Mf (feminine interest) scale of the Minnesota Multiphasic Personality Inventory.⁴⁷

⁴⁴ Vitz and Johnson, op. cit., p. 155.

⁴⁵ Ibid.

⁴⁶ H. G. Gough, California Psychological Inventory Manual, Consulting Psychologists Press, Palo Alto, Cal., 1957.

⁴⁷ W. G. Dahlstrom and G. S. Welsh, An MMPI Handbook, University of Minnesota Press, Minneapolis, Minnesota, 1960.

In terms of the relative masculinity of the various brands, the subject ratings were very similar. Table 2.4 shows the mean masculinity ratings of the thirteen brands used in the study.

TABLE 2.4

MEAN MASCULINITY RATINGS OF THE THIRTEEN
BRANDS OF CIGARETTES

Cigarette type	Letter code	Mean rating			
		Smokers		Nonsmokers	
		Male	Female	Male	Female
Nonfilter	A	79.6	78.2	69.9	71.4
	B	67.2	70.9	69.0	60.6
	C	62.8	60.2	57.3	56.6
	D	62.0	66.9	61.6	64.0
Filter	E	61.7	55.6	72.6	62.6
	F	53.0	49.2	51.0	47.6
	G	44.4	51.9	50.0	52.1
	H	44.0	47.8	48.7	50.0
	I	43.0	47.2	42.4	44.2
	J	36.7	33.9	42.2	42.4
	K	32.6	29.5	41.5	42.0
Filter, menthol	L	33.1	32.9	28.8	28.0
Filter, menthol and mint	M	29.7	26.0	29.2	28.6

Source: Paul C. Vitz and Donald Johnston, "Masculinity of Smokers and the Masculinity of Cigarette Images," Journal of Applied Psychology, Vol. 49, (June 1965), p. 157.

The ratings in this table suggest that both smokers and non-smokers have very similar masculinity ratings relative to the tested cigarette brands. It also suggests that a filter and an additive, such as menthol or mint, are major determinants of a cigarette's masculinity-femininity rating. Between group correlations of the mean masculinity ratings are shown in Table 2.5. These intercorrelations support the above statements.

TABLE 2.5

BETWEEN GROUP CORRELATIONS OF THE MEAN MASCULINITY
RATINGS SHOWN IN TABLE 2.4

	Smokers	Nonsmokers	
	Female	Male	Female
Male smokers	.98	.91	.93
Female smokers	--	.87	.93
Male nonsmokers	--	--	.97

Source: Paul C. Vitz and Donald Johnston, "Masculinity of Smokers and the Masculinity of Cigarette Images," Journal of Applied Psychology, Vol. 49, (June 1965), p. 157.

The next task of the researchers was to determine if subject self-ratings relative to masculinity-femininity was in any way related to the cigarette ratings. Again using correlation analysis the researchers attempted to establish the existence of some

relationship between the traits of masculinity-femininity and brand preference. Table 2.6 depicts the results of the correlation analysis. The correlations show that masculinity of both male and female smokers is positively correlated with the masculinity ratings of the cigarettes. Though the correlations are not high, they are all in the predicted direction.

TABLE 2.6

CORRELATION BETWEEN THE MASCULINITY OF A SMOKER
AND THE MASCULINITY OF SUBJECT'S
REGULAR BRAND OF CIGARETTE

Sex of smoker	Masculinity of subject measured by:	Masculinity of subject's regular cigarette rated by:	
		Self	Group
Male	Fe scale-CPI	.33	.35
N = 40	Mf scale-MMPI	.24	.19
Female	Fe scale-CPI	.28	.33
N = 40	Mf scale-MMPI	.12	.25

Source: Paul C. Vitz and Donald Johnston, "Masculinity of Smokers and the Masculinity of Cigarette Images," Journal of Applied Psychology, Vol. 49, (June 1965), p. 157.

In concluding the research effort, the authors point out that although there exists some support for their hypothesis, only 12 percent of the variance could be explained by personality traits. The longest correlation of .35 accounted for slightly less than 12 percent of the variance and it is clear that many other factors must be in operation in the choice of a cigarette brand.⁴⁸

In another research effort, Franklin Evans⁴⁹ provided marketing researchers with what has since been referred to as a landmark study.⁵⁰ This study attempted to determine if either psychological or objective factors could serve as adequate predictors of brand choice. Evans decided to utilize automobile purchase behavior for the focal point of the research due to the extensive existing research on automobile purchase behavior and psychological variables.⁵¹

⁴⁸ Ibid.

⁴⁹ Franklin B. Evans, "Psychological and Objective Factors in the Prediction of Brand Choice: Ford vs. Chevrolet," Journal of Business, Vol. 32, (October 1959), pp. 340-369.

⁵⁰ Harold H. Kassarian, op. cit., p. 411.

⁵¹ For examples see: Henry Baker, "Sales and Marketing Planning of the Edsel," in Marketing's Role in Scientific Management, Robert Clewett, ed., Proceedings American Marketing Association, 1957, p. 130; David Wallace, "An Adventure in People's Minds: Finding a Personality for the E-Car," in Conference on Sales Management, University of Michigan Press, Ann Arbor, Mich., 1957, p. 6; and Pierre Martineau, Motivation in Advertising, McGraw-Hill Book Company, New York, N.Y., 1957.

In the research, Evans utilized a questionnaire designed to collect three specific kinds of data - demographic data, data gathered from role playing questions designed to measure perceived differences of Ford and Chevrolet owners, and psychological data reflecting the respondents basic personalities (the Edwards Personal Preference Schedule was utilized to measure the psychological factors). A simple random sample of 140 residents of Park Forest, Illinois was used in the study. All respondents owned either a Ford or Chevrolet which had been manufactured between 1955-1958.

In analyzing the data, the major purpose was to discover which variables would best predict brand ownership. The computation of a weighted linear discriminant function provided the foundation for the predictive equation.⁵² The secondary purpose of this research effort was to determine if legitimate differences could be identified among Ford and Chevrolet owners based on psychological or objective factors.⁵³

Seeking to identify differences in ownership patterns based on psychological variables, Evans made comparisons of Ford and Chevrolet owners based around the scores on the Edwards Personal Preference Test. Table 2.7 shows the average scores on each of the personality factors for Ford and Chevrolet owners.

For seven of the factors (achievement, deference, intraception, abasement, change, aggression, and heterosexuality) the different

⁵² Evans, op. cit., p. 344.

⁵³ Ibid.

TABLE 2.7

AVERAGE PERSONALITY NEED SCORES OF FORD
AND CHEVROLET OWNERS

	Ford (N = 71)	Chevrolet (N = 69)	Difference
Achievement	12.80	12.87	-0.07
Deference	9.47	9.77	-0.30
Exhibition	10.06	9.30	+0.76
Autonomy	7.86	8.80	-0.94
Affiliation	10.14	11.09	-0.95
Intracception	11.17	11.32	-0.15
Dominance	13.69	12.41	+1.28
Abasement	7.20	7.28	-0.08
Change	11.39	11.06	+0.33
Aggression	9.59	9.52	+0.07
Heterosexuality	6.63	6.59	+0.04

Source: Franklin B. Evans, "Psychological and Objective Factors in the Prediction of Brand Choice: Ford vs. Chevrolet," Journal of Business, Vol. 32, (October, 1959), pp. 340-369.

scores showed no statistical significance at either the .01 or .05 level.⁵⁴ Four other factors (autonomy, exhibition, dominance, and affiliation) were significant at the .05 level but provided slight

⁵⁴ Ibid.

value for predicting a person's brand selection.⁵⁵ Overall, the distribution of scores for all psychological variables overlapped to such an extent that discrimination between ownership patterns was virtually impossible.⁵⁶

In terms of predicting brand choice, weighted psychological variables built into a linear discriminant predictive equation misclassified 37.1 percent of the sample. In summarizing the research relative to psychological variables and their ability to accurately predict brand purchase behavior, Evans points out that such variables yield only slightly better results than a completely random basis of classification, such as flipping a coin.⁵⁷

Turning the research towards selected objective factors, a similar analysis was carried out using fourteen factors which are commonly used by marketing researchers. Table 2.8 shows the average scores, the scoring ranges, and the difference between group means of Chevrolet and Ford owners over these fourteen factors. There were no specific hypotheses concerning the direction of the differences, and a two-tailed test was used to compare group means.

Nine of the variables showed no significant differences between means (age, traveled over 10,000 miles/year, religious variables, political variables, age, and income).⁵⁸ The most significant

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid.

TABLE 2.8

AVERAGE SCORES OF DEMOGRAPHIC VARIABLES FOR FORD AND CHEVROLET OWNERS

Variable	Scoring Range		Ford (N = 72)	Chevrolet (N = 74)	Difference
Age of car	1 (1958)	-4 (1955)	2.625	3.014	-0.389
Over 10,000 miles per year	1 (over)	-0 (under)	0.722	0.622	+ .100
Shopped more than one dealer	1 (yes)	-0 (no)	0.750	0.716	+ .034
Owner smokes	1 (yes)	-0 (no)	0.778	0.608	+ .170
Own-rent	1 (Rent)	-0 (Own)	0.417	0.554	- .137
Three or more children at home	1 (yes)	-0 (no)	0.444	0.311	+ .133
Catholic or not	1 (yes)	-0 (no)	0.319	0.230	+ .089
Protestant or not	1 (yes)	-0 (no)	0.639	0.662	- 0.23
Attend church more than once a month	1 (no)	-0 (yes)	0.375	0.460	- .085
Republican or not	1 (yes)	-0 (no)	0.444	0.378	+ .066
Democrat or not	1 (yes)	-0 (no)	0.181	0.284	- .103
Age	1 (19)	-9 (54)	5.333	5.351	- .018
Five or more years with same firm	1 (yes)	-0 (no)	0.625	0.473	+ .152
Income (mid-points)	1 (\$3,750)	-6 (\$16,250)	3.194	3.068	+0.126

Source: Franklin B. Evans, "Psychological and Objective Factors in the Prediction of Brand Choice: Ford vs. Chevrolet," Journal of Business, Vol. 32, (October, 1959), pp. 340-369.

variable between the groups was age of car owned. The two next largest differences were smoking and working for the same firm for five or more years.⁵⁹

For all fourteen variables, the distributions of both groups overlap substantially and although five of the fourteen were significantly different, Evans points out that the overlap reduces the chance for discrimination by any one variable or set of variables.⁶⁰ To substantiate this position, Evans again utilized a weighted predictive discriminant function generated from the demographic data and the predictive ability was again very poor. The equation misclassified 30 percent of the owners. Although the predictive ability of the demographic variables was greater than the psychological variables alone, it was still inadequate.⁶¹

In bringing the research to a conclusion, Evans combined the most significant psychological and objective factors, from the previous analyses, and again computed a weighted linear discriminant function to determine if this combination of factors would provide any greater predictive ability. Although "loaded" to produce favorable results, this discriminant function was not substantially better at predicting ownership patterns than the one based on objective factors alone. It misclassified 36 percent of the owners.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Ibid.

Overall, the Evans study was quite comprehensive and its conclusions were aligned with those of other studies relative to the predictive and discriminatory ability of personality traits or psychological variables. These variables had not proven to be significant in the determination of product-brand preference or loyalty.

The Evans study, probably due to its extensive nature and pessimistic conclusions, came under criticism from many fronts and on many grounds.⁶² Rejoinders were written and finally Evans replicated the study.⁶³ The "second" Evans study resulted in only minor modifications of the findings of his initial research. The final conclusions that seem to trickle through is that personality does account for some variance but not enough to give much solace to personality researchers in marketing.⁶⁴

⁶² For examples see: Jacob Jacoby, "Personality and Consumer Behavior: How not to Find Relationships," Purdue Papers in Consumer Behavior, No. 102, Purdue University, 1969; Alan S. Marcus, "Obtaining Group Measures from Personality Test Scores: Auto Brand Choice Predicted from the E.P.P.S.," Psychological Reports, Vol. 17, (October, 1965), pp. 523-531; Joseph Murphy, "Questionable Correlates of Automobile Shopping Behavior," Journal of Marketing, Vol. 27, (October, 1963), pp. 71-72; and Gary Steiner, "Notes on Evans' Psychological and Objective Factors in the Prediction of Brand Choice: Ford vs. Chevrolet," Journal of Business, Vol. 34, (January, 1961), pp. 57-60.

⁶³ Franklin B. Evans, "Reply: You Still Can't Tell a Ford Owner from a Chevrolet Owner," Journal of Business, Vol. 34, (January, 1961), pp. 67-73; Franklin B. Evans, "Correlates of Automobile Shopping Behavior," Journal of Marketing, Vol. 26, (October, 1962), pp. 74-77; Franklin B. Evans, "True Correlates of Automobile Shopping Behavior," Journal of Marketing, Vol. 28, (January, 1964), pp. 65-66; and Franklin B. Evans, "Ford vs. Chevrolet: Park Forest Revisited," Journal of Business, Vol. 41, (October, 1968), pp. 445-459.

⁶⁴ Kassarian, op. cit., p. 412.

Following these attempts to quantitatively relate personality factors to brand preference, a number of articles appeared which explored the qualitative or descriptive nature of brand preference and psychological variables.⁶⁵ Such publications served to summarize the research efforts of others as psychological variables lost their appeal in the study of the development of product-brand preferences.

During this same period that much of the research in personality trait and purchase behavior was being conducted, as well as research in personality and brand-preference, the research works of Everett M. Rogers⁶⁶ were being published. Rogers' work on diffusion and adoption of innovations spurred researchers in personality and purchase behavior to attempt to identify new product users through the use of psychological variables. With the new direction, marketing researchers began their investigations of personality as a determinant variable in the adoption and diffusion of new products and product ideas.

PERSONALITY AND NEW PRODUCT PURCHASE BEHAVIOR: ADOPTION AND DIFFUSION OF INNOVATION

Manufacturer emphasis on new products has been a dominant characteristic in the marketplace for a number of years. The perceived need

⁶⁵ For examples see: Ross M. Cunningham, "Consumer Loyalty to Store and Brand," Harvard Business Review, Vol. 39, (November-December, 1961), pp. 127-137; John U. Farley, "Why Does Brand Loyalty Vary Over Products," Journal of Marketing Research, Vol. 1, (November, 1964), pp. 9-14; and Ronald Frank and Harper Boyd, "Are Private-Brand-Prone Shoppers Really Different?," Journal of Advertising Research, Vol. 5, (December, 1965), pp. 27-35.

⁶⁶ Everette M. Rogers, Diffusion of Innovations, The Free Press, New York, N. Y., 1962.

on the part of product manufacturers to be innovative has led to the expending of over \$15 billion yearly on new product planning, development, and marketing.⁶⁷ A central problem, however, in formulating such plans and product introductions is how to identify consumers who are the best prospects for new products.

In attempting to combat this problem, marketing researchers began to explore the potential of utilizing psychological variables as determinants of innovative behavior and new product acceptance. Arndt,⁶⁸ in one of the earlier investigations into the existence of a relationship between psychological variables and innovative behavior, attempted to construct a profile of individuals exhibiting innovative behavior patterns. Using a sample of 495 student wives, the investigation began with the mailing of a letter (from a manufacturer) inviting the subjects to buy a new brand of coffee in the commissary of the student complex. The letter contained a coupon which allowed the respondent to obtain a one-third discount off the retail price if redeemed within 16 days. After the expiration of the test period, a 30 minute personal interview was completed with 449 of the wives (91 percent of the sample). Thirty-three nonusers of coffee were eliminated from the analysis, leaving 416 coffee users, of which 185 (44 percent) had purchased at least one can of

⁶⁷ John Arndt, "Profiling Consumer Innovations," in John Arndt, ed., Insights Into Consumer Behavior, Allyn and Bacon, Boston, Mass., 1968, p. 71.

⁶⁸ Arndt, op. cit., pp. 71-82.

the new coffee.⁶⁹

In the interviews, data was collected on 12 independent psychological, social, purchasing, and demographic variables. The personality variable of generalized self-confidence was measured through the 23-item Janes and Field⁷⁰ measure of feeling of inadequacy. Table 2.9 shows the results of the correlation analysis between the independent variables and product adoption.

As seen in Table 2.9, statistically significant relationships were found for six of the independent variables. However, in the results, none of the variables were able to account for more than 8 percent of the variance in product adoption and the psychological variable was found to be insignificant in identifying the consumer innovator.⁷¹ In summarizing the results of the research effort, Arndt points out that innovators are apparently more accurately described by what they "do" (general purchase behavior) than "who" they are (psychological and social characteristics), and psychological variables offer little aid in discriminating between innovators and non-innovators.⁷²

Following this attempt to construct a composite psychological and social profile of the consumer innovator, research attention

⁶⁹ Ibid.

⁷⁰ Janes and Field, op. cit.

⁷¹ Ibid.

⁷² Ibid.

TABLE 2.9

CORRELATION BETWEEN THE INDEPENDENT VARIABLES
AND PRODUCT ADOPTION

Variable		Product-Moment Correlation Coefficient	Statistical Significance of the Correlation Coefficient	
Inner-Other Directedness	X ₁	.096	p	< .05
Generalized Self-Confidence	X ₂	-.047	not significant	
Perceived Risk	X ₃	-.139	p	< .01
Opinion Leadership	X ₄	.118	p	< .05
Social Integration	X ₅	.059	not significant	
General Innovativeness for Food Products	X ₆	.024	not significant	
Deal-proneness	X ₇	.225	p	< .01
Usage Rate of Coffee	X ₈	.155	p	< .01
Brand Loyalty	X ₉	.271	p	< .01
Whether Had Any Children	X ₁₀ -	-.004	not significant	
Age	X ₁₁	.050	not significant	
Length of Marriage	X ₁₂	.038	not significant	

Source: John Arndt, "Profiling Consumer Innovations," in John Arndt, ed., Insights Into Consumer Behavior, Allyn and Bacon, Boston, Mass., 1968, p. 75.

shifted towards attempting to use extensive personality profiles while ignoring social and demographic variables. Robertson and

Myers⁷³ investigated the relationships between an extensive number of personality variables, opinion leadership, and innovativeness.

Utilizing a sample of 95 housewives who were willing to complete the lengthy California Psychological Inventory⁷⁴ (a 480 item test which identifies personality characteristics in 18 major areas), the researchers sought to identify innovative behavior across three product categories - appliances, clothing, and food. Innovative behavior was measured using respondent reports of number of items purchased as of the date of the study and opinion leadership was measured by peer report of the subject's reported influence.⁷⁵

In the analysis, a multiple stepwise regression procedure was used. This procedure allowed for analysis of the intercorrelation of the personality traits with innovativeness and opinion leadership. Table 2.10 shows the results of the analysis.

The stepwise regression results show only those variables that would improve prediction of the dependent variable at an appropriate F-ratio level. Rank order of entries are shown, rather than the multiple R's on entry. As can be seen, the overall personality profile, when used in regression equations, indicates little, if

⁷³ Thomas S. Robertson and James H. Myers, "Personality Correlates of Opinion Leadership and Innovative Behavior, Journal of Marketing Research, Vol. 6, (May, 1969), pp. 164-168.

⁷⁴ California Psychological Inventory Manual, op. cit.

⁷⁵ Robertson and Myers, op. cit., p. 165.

TABLE 2.10

RANK ORDER FOR ENTRY OF PERSONALITY TRAITS IN STEPWISE REGRESSIONS

Traits	Innovativeness				Opinion leadership			
	Appliances	Clothing	Food	Total	Appliances	Clothing	Food	Total
Dominance								
Status								
Sociability		1						
Social presence								
Self-acceptance	1			1				
Well-being								
Responsibility	4							
Socialization	3							
Self-control								
Tolerance								
Impression								
Communality	2		1	2				
Achievement-conformance								
Achievement-independence								
Intellectual efficiency	5							
Psychological mindedness								
Flexibility								
Femininity								
R ² for rank order variables	.23	.04	.05	.11				
Standard error	1.60	2.03	2.60	4.27				

Source: Thomas S. Robertson and James H. Myers, "Personality Correlates of Opinion Leadership and Innovative Buying Behavior," Journal of Marketing Research, Vol. 6, (May, 1969), p. 166.

any, predictive ability. The range of R^2 values is from .04 for clothing to .23 for appliances. These values indicate that the individual's personality configuration relates very slightly, if at all, to his inclination for innovative purchases.⁷⁶

In analyzing the data it was also noted that no relationship at all appeared between personality traits and opinion leadership. The authors conclude that none of the variables under consideration show any predictive ability between personality and opinion leadership and only slight predictive ability between personality and innovativeness.⁷⁷

Overall, this study cast doubt on many postulated relationships between basic personality variables and innovative behavior. It is not that there are "no relationships at all", but only that the relationships that emerged had questionable statistical significance much less major practical value.⁷⁸

Given the pessimistic results of the Robertson and Myers study, other marketing researchers were quick to bring up both methodological and conceptual criticisms. Bruce and Witt⁷⁹ suggested that the research should have included the use of multiple discriminant

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Grady D. Bruce and Robert E. Witt, "Personality Correlates of Innovative Buying Behavior," Journal of Marketing Research, Vol. 7, (May, 1970), pp. 259-260.

analysis. This technique could have been used to determine if personality could predict whether an individual would be an innovator or not. The object of using this technique would have been to determine if personality scores could properly classify adapters vs. non-adapters, as opposed to determining how much variance could be explained in a continuous criterion variable through regression analysis.⁸⁰ Robertson and Myers⁸¹ commented on the criticism by pointing out that the suggested analysis would be proper if the objective of their research had been to simply classify individuals into innovator vs. non-innovator categories utilizing personality traits. However, this was not the purpose of their research and the conclusions drawn, in their initial research, should still be considered legitimate until disproven or modified by future research efforts.

Even with such pessimistic results being generated the search for the consumer innovator continued. Boone⁸² conducted research which was designed to overcome what he perceived to be the major shortcomings of the Robertson and Myers research in personality and innovativeness. The Robertson and Myers research had exhibited what Boone viewed as two major methodological flaws. First, the study

⁸⁰ Ibid.

⁸¹ Thomas S. Robertson and James H. Myers, "Personality Correlates of Innovative Buying Behavior: A Reply," Journal of Marketing Research, Vol. 7, (May, 1970), pp. 260-261.

⁸² Louis E. Boone, "The Search for The Consumer Innovator," Journal of Business, Vol. 43, (April, 1970), pp. 135-140.

had mainly relied on subject recall of adoption date and secondly, they did not gather information from a sufficiently representative sample.⁸³

Utilizing the five-year-old Community Antenna Television System (CATV) in Laurel, Mississippi as the innovation, Boone was able to generate a sample of 97 respondents. Identification of adopters and adoption dates were available from the local franchises. A 10 percent systematic sample was selected containing 52 "Consumer Innovators" (persons who subscribed within three months following introduction) and 45 "Consumer Followers" (persons subscribing at least six months following the introduction of CATV).⁸⁴

The California Psychological Inventory was administered to the sample and an analysis of variance between mean scores was utilized. The results showed "Consumer Innovators" scoring significantly higher than the later adopters on ten of the eighteen variables under consideration.

In concluding the research, Boone points out that this study should at least shed some doubt on other studies which have entirely negated the influence of psychological variables in identifying the consumer innovator.⁸⁵ The implications here at least suggest that Cunningham and Scott's argument for different and unique conceptual foundations when studying personality and purchase behavior has

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Ibid.

some merit.

Boone's research, however, cannot be considered as a rebuttal to the Robertson and Myers' research. Although his results indicate significant differences between innovators and followers, his statistical techniques were quite different from those employed by Robertson and Myers.⁸⁶ In effect, it is not possible to determine whether or not the two studies are in disagreement.⁸⁷

Research efforts seeking to identify some relationship between personality and innovativeness began to subside as confusion and conflicting findings continued to be the only results of such research efforts. However, research attempting to identify the innovator using other factors continued over a number of years. Table 2.11 outlines the efforts of researchers in attempting to identify factors related to consumer innovativeness. This table represents 174 independent studies which attempt to identify some relationship between innovativeness and purchase behavior.

As can be seen, attempts were made to identify consumer innovators using demographic factors, value factors, consumption patterns, social interaction factors, and other factors. In summarizing these broad research efforts, Robertson points out that, "there is no clear-cut evidence as to whether or not innovative

⁸⁶ Harold Kassarian, op. cit., p. 412.

⁸⁷ Ibid.

TABLE 2.11

FACTORS RELATED TO CONSUMER INNOVATIVENESS
ACROSS PRODUCT CATEGORIES

Factor	Number of Studies and Relationships Shown		
	Positive	None	Negative
Demographic Factors			
Age	1	6	4
Education	7	3	0
Income	9	4	0
Occupational Status	6	5	0
Number of Children	1	8	1
Communication Behavior			
Print Readership	7	2	0
Television Viewership	1	3	1
Social Interaction Factors			
Social Participation:			
Informal	6	6	0
Formal	4	3	0
Opinion Leadership	10	3	0
Cosmopolitanism	1	3	0
Social Mobility	4	0	0
Norm on Innovation	6	0	0
Attitudinal, Perceptual, and Personality Factors			
Venturesomeness	5	0	0
Perceived Risk	0	4	5
Self-Perception of Innovativeness	2	0	0
Personality:			
Inventories	2	3	0
Generalized Self-confidence	1	1	0
Attitude Toward Innovations	8	0	0
Value Factors			
Religious Participation	0	1	1
Values	1	0	0
Consumption Patterns			
Product Category Usage Rate	7	1	0
Number of Stores Shopped	1	0	1
Willingness to Try New Products	4	1	0
Brand Loyalty	0	1	3

Source: Thomas S. Robertson, Innovative Behavior and Communication, Holt, Rinehart and Winston, Inc., New York, N.Y., 1971, p. 101.

behavior is consistent across product categories."⁸⁸ The implication is that research efforts across a relatively broad spectrum of variables, which might aid in identifying the consumer innovator, have proven to be inconclusive. In effect, these results, like those in the areas of personality trait and purchase behavior and personality and brand preference research, have yielded few, if any, significant results.

AN OVERVIEW OF PERSONALITY AND BUYER-BEHAVIOR

A review of the previously presented studies and papers could be summarized in a simple word, "equivocal". Some studies indicate the existence of a relationship between personality factors and aspects of buyer behavior, some indicate no relationship, and the majority indicate that if relationships do exist they are so weak as to be questionable or perhaps meaningless.

Several reasons have been postulated to account for these discrepancies. Kassarian⁸⁹ points out that marketing researchers have in many cases adopted personality measuring instruments to fit their demands by taking items out of context, changing words, and often drastically altering the original instrument. Marketing researchers have also failed to develop their own definitions and design their own instruments to measure personality variables.⁹⁰

⁸⁸ Thomas S. Robertson, Innovative Behavior and Communication, Holt, Rinehart and Winston, Inc., New York, N.Y., 1971, p. 111.

⁸⁹ Kassarian, op. cit., p. 415.

⁹⁰ Ibid.

This failure to construct definitions and design independent instruments has, in some cases, brought about the misapplication of researcher effort. For example, in the usual pattern of applying directly borrowed psychological and sociological concepts to marketing and consumer behavior, several researchers⁹¹ have turned their attentions to Riesman's social character theories.⁹² Such efforts have yielded few, if any, significant results. What is more important, however, is that Riesman by no means intended his typology to be interpreted as a personality schema, and empirical research shows that no relationship exists between personality factors and inner-other directedness.⁹³

A final line of reasoning for the lackluster results of personality studies in marketing lies in the fact that many studies have been conducted by a shotgun approach with no specific hypotheses or theoretical justification.⁹⁴ Typically, an easily scored

⁹¹ For several examples see: Lauren C. Hickman and Sanford Dornbusch, "Other-Directedness in Consumer Goods Advertising: A Test of Riesman's Theory," Social Forces, Vol. 38, (December 1959), pp. 99-102; Arch Woodside, "Social Character, Product Use, and Advertising Appeals," Journal of Advertising Research, Vol. 8, (December 1969), pp. 31-35; James Donnelly, "Social Character and Acceptance of New Products," Journal of Marketing Research, Vol. 7, (February 1970), pp. 111-113.

⁹² David Riesman, Nathan Glazer, and Revel Denny, The Lonely Crowd, Yale University Press, New Haven, Conn., 1950.

⁹³ Harold H. Kassarian and Waltraud M. Kassarian, "Personality Correlates of Inner and Other Directedness," Journal of Social Psychology, Vol. 70, (June 1966), pp. 281-285.

⁹⁴ Kassarian, op. cit.

and easy to administer personality profile is utilized along with disjoint data, seeking to identify any existent relationship with little or no theoretical foundation or conceptual base. An extreme example of such research lies in the use of Riesman's social character schema as personality variables. Another example, particularly pertinent to this dissertation, is the use of the Rokeach scale in marketing research with dogmatism viewed as a personality trait.⁹⁵ Rokeach, like Riesman, did not intend his theory of personality structure to be interpreted so narrowly as will be shown in the following section of this research.

In Chapter III, the theory of open-closed personality systems will be presented along with a review of pertinent literature which might contribute to future research efforts in the study of consumer purchase behavior. In this chapter Rokeach's theory will be presented as a potentially unique paradigm for analyzing new product awareness and purchase behavior patterns of individuals.

⁹⁵ For examples see: Donald T. Popielarz, "An Exploration of Perceive Risk and Willingness to Try New Products," Journal of Marketing Research, Vol. 4, (November 1967), pp. 368-372; and Brian Blake, "Dogmatism and Acceptance of New Products," Journal of Marketing Research, Vol. 7, (November 1970), pp. 483-487.

CHAPTER III

THE OPEN-CLOSED PERSONALITY SYSTEM AND RELATED LITERATURE

If one can evaluate concepts by the amount and nature of research they stimulate, Rokeach's theory of personality systems must be considered a potent formulation.¹ The concept of the open-closed personality system has provided a common denominator in many diverse areas. Dogmatism (the closed personality system) has been explored as a factor in explaining religious beliefs, political partnership, teaching ability, the adjustment patterns of the mentally disturbed, and many other areas too diverse to categorize.²

Given this level of application, a comprehensive review of the literature pertaining to the open-closed personality system would be a major effort in and of itself. Therefore, the research literature to be reviewed in this chapter will be categorized into areas of particular importance and interest to marketing researchers in personality and purchase behavior. The areas of research to be considered will be; the impact of open-closed personality systems on learning and problem solving, on the maintenance of cognitive consistency, and on perception. These particular areas (learning and problem-solving, maintenance of cognitive consistency, and

¹ Ralph B. Vacchiano, Paul S. Strauss, and Leonard Hockman, "The Open and Closed Mind: A Review of Dogmatism," Psychological Bulletin, April, 1969, pp. 261-269.

² Ibid.

perception) are generally designated as areas of study in most texts dealing with the study of consumer behavior.³

Prior to reviewing this related research, an explanation of Rokeach's theory will be presented. This unique paradigm will be utilized to determine if there exists any relationship between personality structure and purchase behavior. The use of Rokeach's theoretical formulization is proposed in this chapter as a method of possibly providing more concrete research results than has been provided in past research dealing with personality content variables and purchase behavior. This explanation will be followed by a review of the related literature and suggestions for application of Rokeach's theory to particular marketing problems.

THE THEORY OF OPEN-CLOSED PERSONALITY SYSTEMS

Most definitions of personality are quite general, and the term frequently is used in many different ways with varied connotations. However, most all attempts at formal definition stress that personality refers to a set of characteristics that determine the general

³ These areas are generally given individual attention in many texts on consumer behavior. For example see: Steuart Henderson Britt, Consumer Behavior in Theory and in Action, John Wiley and Sons, Inc., New York, N.Y., 1970; Steuart Henderson Britt, Consumer Behavior and the Behavioral Sciences-Theories and Applications, John Wiley and Sons, Inc., New York, N.Y., 1966; James F. Engle, David T. Kollat, and Roger D. Blackwell, Consumer Behavior, Holt, Rinehart, and Winston, Inc., New York, N.Y., 1968; James F. Engel, David T. Kollat, and Roger D. Blackwell, Research in Consumer Behavior, Holt, Rinehart, and Winston, Inc., New York, N.Y., 1970; Francesco M. Nicosia, Consumer Decision Processes, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1966, Chapters 2, 3, and 4; Harold H. Kassarian and Thomas S. Robertson, Perspectives in Consumer Behavior, Scott, Foresman and Company, Glenview, Ill., 1968.

patterns of behavior in a higher animal, especially as it makes the individual distinctive in relations with others.⁴ Probably the most widely accepted definition of personality is that it represents "the configuration of individual characteristics and ways of behaving which determines an individual's unique adjustment to his environment."⁵ As such, personality is inferred to exist from consistencies in the individual's pattern of responses to the world in which he lives.⁶

The definition of personality utilized in this dissertation is by no means a radical departure from the more traditional definitions. Personality, in this research, is defined as the existing organization of beliefs, expectencies, temperament, intellect, and character which determines an individual's unique adjustment to the environment in which he lives.⁷ What is unique, however, is that in the theory of open-closed personality systems, as advanced by Rokeach, personality is conceptualized as having a definable and measureable structure.⁸

⁴ D. O. Hebb, A Textbook of Psychology, Saunders Publishers, Philadelphia, Penn., 1966.

⁵ Ernest Hilgard, Introduction to Psychology, Harcourt, Brace, and World, New York, N.Y., 1967.

⁶ Thomas S. Robertson, Consumer Behavior, Scott, Foresman and Company, Glenview, Ill., 1970, p. 39.

⁷ Milton Rokeach, The Open and Closed Mind, Basic Books, Inc., New York, N.Y., 1960, pp. 6-9.

⁸ Ibid., p. 7.

This concept of structure follows logically from viewing personality as "an organized system". In the social psychology and social systems literature, Rokeach's theory would be classified as a structural-functional theory, which has its basis in identifying some system of action (individual personality in this instance) and then analyzing and explaining that system in terms of its structure and content.⁹ The approach to theory has been widely utilized in the social sciences and Alderson¹⁰ utilized this approach in writing several texts that have become classics in the marketing literature.

This aspect of structure gives personality researchers in marketing, as well as other social sciences, a measurable construct which cuts across specific content variables. Such variables have yielded little in the way of tangible research results as shown in Chapter II of this research. In Rokeach's theory of open-closed personality systems, the most important single item of distinction is the conceptualization that any identifiable personality structure cuts across specific content variables; that is, it is not uniquely restricted to any set of independent personality characteristics or

⁹ For a complete explanation of structural-functional theory and its approach to analysis see: Don A. Martindale, The Nature and Types of Sociological Theory, Houghton Mifflin Publishers, Boston, Mass., 1960; Don A. Martindale, Functionalism in the Social Sciences, American Academy of Political and Social Sciences Monograph No. 5, 1965; and Robert K. Merton, Social Theory and Social Structure, The Free Press, New York, N.Y., 1968.

¹⁰ Wroe Alderson, Dynamic Marketing Behavior, Richard D. Irwin, Inc., Homewood, Ill., 1965; and Wroe Alderson, Marketing Behavior and Executive Action, Richard D. Irwin, Inc., Homewood, Ill., 1957.

traits. A clear example of what is being considered can be found where Rokeach points out that, when viewing structure it is not so much "what" one believes that counts, but "how" he believes.¹¹ In other words, the specific content of an identifiable personality structure is of little concern to the researcher when attempting to relate personality and behavior at the structural level.

When dealing with personality systems in this framework, the structure of the system, according to Rokeach, is defined in terms of relative openness or closedness of the system, without concern for specific content. That is, a person may adhere to communism, existentialism, or the "new conservatism" in a relatively open or in a relatively closed manner. A person may be extroverted, introverted, inner-directed, or outer-directed and still maintain a relatively open or closed personality system. Thus, as a measure of personality structure, the openness or closedness of the personality system, can be seen to cut across specific content variables.

This distinction may be made more explicit with an analogy. In attitude theory we can legitimately discuss the idea of attitude components.¹² These components being; the cognitive component, the affective component, and the behavioral component. These components constitute the structure of any given attitude.¹³

¹¹ Rokeach, op. cit., p. 6.

¹² James F. Engel, David T. Kollat, and Roger D. Blackwell, op. cit., p. 166.

¹³ Ibid.

However, in personality theory there is nothing in the theory referencing components of personality. There is no agreement concerning the components of personality.¹⁴ When discussing personality, we deal with the idea of content. Figure 3.1 shows the organization of personality as it is currently viewed in theory. This is an organization of the content of personality.¹⁵ Content is defined as the traits or characteristics exhibited by the individual.¹⁶

Rokeach's theory of personality adds the dimension of structure. This idea of structure is simply defined as the "relative openness or closedness of the personality system" and cuts across all content dimensions. In theory, we are dealing with structure because there exist no agreement concerning the specific components of that structure. This, however, does not disallow for research relative to structure, as defined, and behavior. For further clarity, the reader may think of structure as that which bounds content and is represented in the diagram as an enclosing circle.

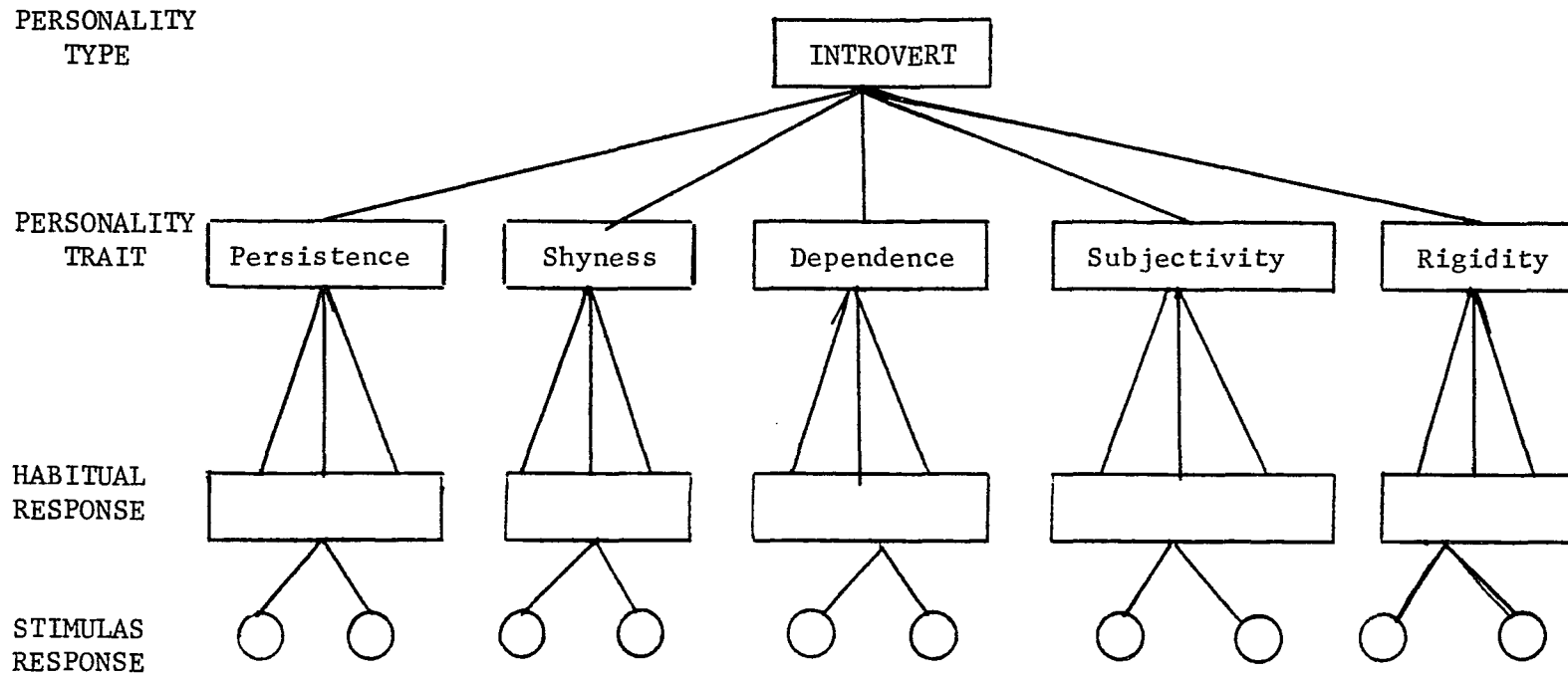
Once this conceptualization of personality structure is understood, the next step is to understand the basic nature of open-closed personality systems. In other words, what is the substantive basis for the conceptualization of personality systems,

¹⁴ Ibid., p. 145.

¹⁵ H. J. Eysenck, The Structure of Human Personality, Methuen and Company, Ltd., New York, N.Y., 1953, p. 13.

¹⁶ Ibid.

FIGURE 3.1. THE ORGANIZATION OF PERSONALITY



Personality structure may be viewed as the aspect of personality that bounds this organization of content. The concept of structure gives researchers an added dimension with which to deal with personality.

* Adopted with modification from H.J. Eysenck, The Structure of Human Personality, Methuen and Company, Ltd., New York, N.Y., 1953, p. 13.

being either relatively open or relatively closed with respect to their structure?

In Rokeach's theory, personality is viewed as "an existing organization of beliefs or expectancies having a definable and measurable structure."¹⁷ The beliefs and/or expectancies are categorized as existing at three interdependent levels (central, intermediate, and peripheral), forming the individual's "belief-disbelief" system. This belief-disbelief system provides the theoretical base of Rokeach's theory of open-closed personality systems.

All persons can be said to have certain beliefs to which they adhere. Rokeach's theory, however, advanced two unique characteristics of beliefs. First, beliefs exist in sets or clusters and are conceptualized as existing at the three levels previously mentioned, and secondly they exist along with an asymmetrical "disbelief" system. Each of these characteristics need some elaboration before continuing to describe the personality system along an open-closed continuum.

Those beliefs existing in the central region represent what Rokeach describes as "primitive" beliefs.¹⁸ These refer to all the beliefs a person has acquired about the nature of the physical world he lives in, the nature of the "self", and of the "generalized other."¹⁹ Such beliefs reflect the individuals perceptions regarding

¹⁷ Rokeach, op. cit., p. 6.

¹⁸ Ibid., pp. 39-40.

¹⁹ Ibid., pp. 39-40.

the nature of physical reality (implying the nature of such things as color, form, sound, space, and time). In relation to other persons, primitive beliefs may be thought of as those virtually everyone is believed to have. Such beliefs are formed early in life and in the ordinary course of events are never questioned by the individual.

At the next level within the belief system are what Rokeach called nonprimitive beliefs and they lie within the intermediate region of the total belief system. Such beliefs are concerned with the nature of positive and negative authority to be depended upon to fill out a map of one's world. Authorities are generally viewed as intermediaries to whom one turns for information to supplement what information the individual can obtain for himself. What is critical in this area of beliefs is not that the individual utilizes external referent sources of authority, but one's ideas about the basic nature of authority and one's dependence on external authority sources.

Lastly, peripheral beliefs are those which actually emanate from positive and negative sources of authority. For example, favorable or unfavorable beliefs about such things as birth control, the New Deal, and the theory of repression would be considered peripheral beliefs which have emanated from one's beliefs about the Catholic church, Roosevelt, and Freud.²⁰ The latter would be representative of intermediate level beliefs, while the former would be peripheral level beliefs.

²⁰ Ibid., p. 47.

In Rokeach's theory of personality one could summarize the belief system of the individual as being all the beliefs, sets, or expectancies (existing in one of the three discussed levels), conscious or unconscious, that an individual at a given time accepts as true of the world he lives in.²¹

This belief system has a counter-part which exists along with it. Rokeach also defined the existence of a "disbelief" system which was composed of all the disbeliefs, sets, or expectancies, conscious or unconscious, that to one degree or another, a person at a given time rejects as false.²² These conceptualizations allowed Rokeach to present the theory of "belief-disbelief systems" existing for each individual which is describable along a belief-disbelief continuum and organizable along a central-intermediate-peripheral dimension.

These two dimensions define the characteristics of open-closed personality systems. Table 3.1 briefly reviews these two dimensions. Table 3.2 describes these two dimensions in greater detail. The table provides the complete definitional framework for Rokeach's theoretical formulazation.

These defining characteristics identify the fundamental nature of open and closed personality systems. They define, within a conceptual framework, the two major dimensions of open-closed personality systems (organization along a central-intermediate-peripheral dimension and organization along a belief-disbelief continuum) and

²¹ Ibid., p. 33.

²² Ibid., p. 33.

TABLE 3.1

ROKEACH'S DIMENSIONS OF PERSONALITY SYSTEMS

-
- A. All individual beliefs can be said to exist in sets or clusters and they are describable in terms of a central-intermediate-peripheral dimension.
- B. All individual beliefs can be said to exist in sets or clusters and they are organizable along a belief-disbelief continuum.
-

Source: Milton Rokeach, The Open and Closed Mind, Basic Books, Inc., New York, N.Y., 1960, pp. 55-56.

TABLE 3.2

THE DEFINING CHARACTERISTICS OF OPEN-CLOSED PERSONALITY SYSTEMS

A Personality System Is	
Open	Closed
<hr/>	
A. to the extent that, with respect to its organization along the belief-disbelief continuum,	
1. the magnitude of rejection of disbelief subsystems is relatively low at each point along the continuum;	1. the magnitude of rejection of disbelief subsystems is relatively high at each point along the disbelief continuum;
2. there is communication of parts within and between belief and disbelief systems;	2. there is isolation of parts within and between belief and disbelief systems;
3. there is relatively little discrepancy in the degree of differentiation between belief and disbelief systems;	3. there is relatively great discrepancy in the degree of differentiation between belief and disbelief systems;
4. there is relatively high differentiation within the disbelief system;	4. there is relatively little differentiation within the disbelief system;

TABLE 3.2 (cont.)

Open	Closed
B. to the extent that, with respect to the organization along the central-intermediate-peripheral dimension,	
1. the specific content of primitive beliefs (central region) is to the effect that the world one lives in, or the situation one is in at a particular moment, is a friendly one;	1. the specific content of primitive beliefs (central region) is to the effect that the world one lives in, or the situation one is in at a particular moment, is a threatening one;
2. the formal content of beliefs about authority and about people who hold to systems of authority (intermediate region) is to the effect that authority is not absolute and that people are not to be evaluated (if they are to be evaluated at all) according to their agreement or disagreement with such authority;	2. the formal content of beliefs about authority and about people who hold to systems of authority (intermediate region) is to the effect that authority is absolute and that people are to be accepted and rejected according to their agreement or disagreement with such authority;
3. the structure of beliefs and disbeliefs perceived to emanate from authority (peripheral region) is such that its substructures are in relative communication with each other.	3. the structure of beliefs and disbeliefs perceived to emanate from authority (peripheral region) is such that its substructures are in relative isolation with each other.

Source: Milton Rokeach, The Open and Closed Mind, Basic Books, Inc., New York, N.Y., 1960, pp. 55-56.

allowed for the operationalization of Rokeach's theory. As stated by Rokeach:

"These defining characteristics make possible our research undertaking. They provide a useful set of theoretical blueprints to guide in the construction of an instrument to measure open-closed systems and also provide us with a large reservoir of hypotheses about differences in cognitive and emotional behavior, expected

to exist between persons characterized as open and closed with respect to their personality system."²³

In expanding these defining characteristics for explanatory purposes, one could describe a person with a closed personality system as one who strongly rejects all disbeliefs which he holds to be false, who lacks the ability to relate his beliefs and disbeliefs to the inner requirements of logical consistency (isolation between and within belief and disbelief systems), and who differentiates belief and disbelief on the basis of external authority figures rather than self-knowledge. This individual would also perceive the word as threatening, will have a greater dependence on absolute authority, and will evaluate other individuals according to the authorities they line up with.

It should be noted at this point that open and closed personality systems, as described, are only ideal types.²⁴ They are convenient for purposes of analysis but rarely, if ever, will an individual exhibit a completely open or completely closed personality system.²⁵

Given the complete conceptualization, Rokeach and his fellow researchers validated their theory of open-closed personality systems over a number of years and a wide variety of research experiments.

²³ Rokeach, op. cit., pp. 56-57.

²⁴ Ibid., p. 66.

²⁵ Ibid.

The results of their research investigations were made available to the academic community with the publication of Rokeach's textbook, The Open and Closed Mind: Investigations Into the Nature of Belief and Personality Systems.²⁶

The publication of Rokeach's theory generated considerable research into the nature of open-closed personality systems which, over time, brought about acceptance of the theory within the discipline of social psychology.²⁷ Probably the most critical research, in terms of the theory becoming an acceptable one, dealt with attempts to build personality trait profiles of the open-closed personality system.

Rokeach's most basic premise was that personality systems could be differentiated in terms of the relative openness or closedness of the system, without regard for content variables. That is to say that the structure of any identifiable personality system cuts across specific content variables.

In testing this premise, Vacchiano, Strauss, and Schiffman²⁸ engaged in a very comprehensive attempt to identify the personality

²⁶ The complete theory of open-closed personality systems is presented in the first three chapters of the text. Chapter IV deals with the measurement of personality systems and the remaining eighteen chapters present the research findings of Rokeach and his researchers which serve to validate the core theory.

²⁷ Vacchiano, et. al., op. cit.

²⁸ Ralph B. Vacchiano, Paul S. Strauss, and David C. Schiffman, "Personality Correlates of Dogmatism," Journal of Consulting and Clinical Psychology, Vol. 32, No. 1, 1968, pp. 83-85.

correlates of dogmatism. Four diverse instruments, measuring different concepts of personality (Edwards Personal Preference schedule, Cattells 16 Personality Factor Questionnaire, the Tennessee Self-Concept Scale, and the Mach V Scale to measure Machiavellianism) were administered to 53 male and 29 female respondents. The 59 scales contained within the measuring instruments were placed in a 59/59 matrix, and Person product-moment correlations were computed.²⁹ Table 3.3 shows the results of the analysis.

In the analysis, the Mach V scales failed to correlate with either dogmatism or any other scale in the battery. This suggests that Machiavellianism is probably a cluster of social attitudes toward dealing with people in interpersonal situations rather than a particular pattern of personality functioning.³⁰ Overall, only 20 of the 59 factors showed any correlation to dogmatism and the correlations that did appear were very low and failed to identify any particular traits which could be consistently identified with the dogmatic individual.³¹

However, the correlations that did appear would seem to form a logical description which substantiates Rokeach's formulation of internal belief structures.³² From the correlations yielded, it

²⁹ Ibid.

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

TABLE 3.3

CORRELATIONS BETWEEN DOGMATISM AND
59 PERSONALITY SCALES

Test	Correlation with dogmatism
EPPS	
Intraception	-.21
Succorance	.25
Change	-.25
TSCS	
Self-esteem	-.34
Self-satisfaction	-.38
Behavior	-.28
Physical self	-.31
Moral-ethical self	-.25
Personal self	-.31
Distribution score	-.21
True/false ratio	-.24
Defensive	.30
General maladjustment	.31
Personality disorder	.26
Neurosis	.35
16 PF	
C Affected vs. emotionally stable	-.31
E Humble vs. assertive	-.25
H Shy vs. venturesome	-.24
Q ₁ Conservative vs. experimenting	-.23
Q ₄ Relaxed vs. tense	.24

Source: Ralph B. Vacchiano, Paul S. Strauss, and Davis C. Schiffman, "Personality Correlates of Dogmatism," Journal of Consulting and Clinical Psychology, Vol. 32, No. 1, 1968, pp. 83-85.

would seem that subjects exhibiting dogmatism would have a need to receive support, encouragement, and understanding from others; an intolerance for understanding the feelings and motives of others; and an avoidance in changing their environment or daily routine.³³ The dogmatic lacks self-esteem, is doubtful of his self-worth, is anxious, lacks confidence in himself, is defensive, is frustrated by changeable conditions and very conservative. In regard to their conservatism, the dogmatic subjects are confident in what they have been taught to believe, accept the tried and true despite inconsistencies, and are cautious in regard to new ideas, generally going along with tradition.³⁴

The general description evolving from this research effort was, as previously stated, in line with Rokeach's description of the closed personality system. The research also substantiated the premise that personality structure, as defined by Rokeach, existed independently from measurable personality content traits or variables.

A number of other less comprehensive studies were also conducted to determine if personality structure could, in fact, be described as existing independently of identifiable personality traits. Rokeach and Kerlinger³⁵ conducted a factorial examination

³³ Ibid.

³⁴ Ibid.

³⁵ F. Kerlinger and M. Rokeach, "The Factorial Nature of the F and D Scales," Journal of Personality and Social Psychology, 1966, 4, pp. 391-399.

of respondent scores on various personality trait profiles and their dogmatism scores to determine if any consistent loadings could be identified. Across the sample of 283 respondents no consistent factor loadings appeared.³⁶ Lefcourt³⁷ examined the clinical correlates (personality traits exhibited by patients under care for social regression) of dogmatism and again found no consistent traits that could be identified with the closed personality system over time.³⁸ These studies supported the conceptualization of the existence of personality structure as a measurable and unique aspect of personality systems. The theory of open-closed personality systems was then, as previously pointed out, researched across a very broad spectrum of social and psychological phenomena.³⁹

The areas of this research activity relevant to marketing theorists investigating consumer purchase behavior are: learning and problem-solving in open-closed systems, the maintenance of cognitive consistency in open-closed personality systems, and perception in open-closed personality systems. As previously pointed out, these areas are generally given individual attention in the study of consumer behavior.

³⁶ Ibid.

³⁷ H. M. Lefcourt, "Clinical Correlates of Dogmatism," Journal of Clinical Psychology, 1962, 18, pp. 327-328.

³⁸ Ibid.

³⁹ Vacchiano, Strauss, and Schiffman, op. cit.

LEARNING AND PROBLEM SOLVING IN OPEN-CLOSED PERSONALITY SYSTEMS

In the early stages of the investigations into the behavioral ramifications of the closed personality system, Rokeach had shown that the more closed a person's system, the more difficulty the individual should encounter in solving problems and learning new cognitive sets.⁴⁰ A number of experimental efforts were conducted in attempting to confirm the early research findings of Rokeach and his colleagues in this area.

Ehrlich⁴¹ conducted an exploratory study to determine if the relationships described, by Rokeach, to exist between the closed personality system and learning were valid. Specifically, the hypotheses being tested in Ehrlich's research were that dogmatism is "inversely" related to learning and that the predicted relationship between dogmatism and learning is independent of academic aptitude.⁴²

In the Ehrlich study a sample of 100 students in four introductory sociology courses at Ohio State University were utilized. All of the subjects were available for a first and second administration of the test battery and scores on the Ohio State Psychological Examination (OSPE) were available for all subjects. The procedure used was to administer the Rokeach dogmatism scale and

⁴⁰ Rokeach, op. cit., pp. 171-196.

⁴¹ Howard J. Ehrlich, "Dogmatism and Learning," Journal of Abnormal and Social Psychology, 1961, 62, pp. 148-149.

⁴² Ibid.

a 40-item true-false test of sociological knowledge during the first week of the academic quarter. The sociology test was readministered during the last week of the quarter, with an approximate 10 weeks time lag. Five months later the dogmatism scale and the sociology test were mailed to the overall subjects. This reduced the sample in test three to 57 complete returns. The purpose of test three was to make available to the researchers, results from a "non-class room" setting.

The relationships between dogmatism, OSPE, and learning in the tests are shown in Table 3.4. As expected, dogmatism yields an

TABLE 3.4

INTERCORRELATIONS BETWEEN DOGMATISM, OSPE,
AND SOCIOLOGY TEST SCORES

	OSPE	Sociology Test		
		Time 1	Time 2	Time 3
Dogmatism	-.28	-.30	-.52	-.54
OSPE	--	.27	.32	.36
Sociology Test (t_1)		--	.66	.63
Sociology Test (t_2)			--	.89

Source: Howard J. Ehrlich, "Dogmatism and Learning," Journal of Abnormal and Social Psychology, 1961, 62, pp. 148-149.

inverse relationship, and OSPE a direct relationship with learning.⁴³ The absolute changes in the test scores for the three administrations were all significantly different from each other using t-test for correlated means, at $p < .001$.⁴⁴ Table 3.5 exhibits the first-order partials, controlling alternatively for OSPE and dogmatism, and

TABLE 3.5

PARTIAL CORRELATIONS BETWEEN DOGMATISM, OSPE,
AND SOCIOLOGY TEST SCORES

	Partial r with Dogmatism OSPE Constant	Partial r with OSPE Dogmatism Constant
Sociology Test (t_1)	-.24	.20
Sociology Test (t_2)	-.48	.21
Sociology Test (t_3)	-.49	.26

Source: Howard J. Ehrlich, "Dogmatism and Learning," Journal of Abnormal and Social Psychology, 1961, 62, pp. 148-149.

indicates, as predicted, that (a) dogmatism is significantly and inversely related to learning, and (b) can account for a greater proportion of the variance in the test scores than the OSPE.⁴⁵

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Ibid.

Recognizing that the subject's initial level of competence in the subject matter of the course might also be a determinant of further learning, the researchers also computed second-order partial correlations controlling for initial test scores and alternatively for OSPE and dogmatism. These results are shown in Table 3.6.

TABLE 3.6

SECOND ORDER PARTIAL CORRELATIONS BETWEEN DOGMATISM,
OSPE, AND SOCIOLOGY TEST SCORES

	Partial r with Dogmatism OSPE and Initial Test Scores Constant	Partial r with OSPE Dogmatism and Initial Test Scores Constant
Sociology Test (t_2)	-.43	.12
Sociology Test (t_3)	-.45	.18

Source: Howard J. Ehrlich, "Dogmatism and Learning," Journal of Abnormal and Social Psychology, 1961, 62, pp. 148-149.

As shown, the relationship between dogmatism and learning remains relatively unaffected, while the partialing out of initial test scores decreases the correlations between OSPE and learning considerably.⁴⁶ Overall, the results of this rather comprehensive

⁴⁶ Ibid.

study help validate Rokeach's formulations on the nature of the closed personality system. The author confirmed the basic hypotheses of the research showing that dogmatism was inversely related to the degree of learning and independent of academic aptitude.⁴⁷

Five years later, Ehrlich⁴⁸ contacted 90 of the original subjects in the previously described experiment by mail and received 65 completed returns, yielding dogmatism scores, sociology test scores, and subject's reports of their final grade-point averages. This effort was an attempt to determine if any changes from the original findings would occur over a lengthy time interval. In this five year follow-up the same results were obtained regarding dogmatism, OSPE, and test performance, with partial correlations displaying approximately the same patterns and magnitudes.⁴⁹

Taking their research efforts out of the classroom, Adams and Vidulich⁵⁰ conducted a laboratory experiment to once again test Rokeach's initial findings. Using 36 volunteers from introductory psychology classes at Louisiana State University, the researchers set up a paired association learning scheme to determine if, in

⁴⁷ Ibid.

⁴⁸ Howard J. Ehrlich, "Dogmatism and Learning: A Five Year Follow-Up," Psychological Reports, 1966, 9, pp. 283-286.

⁴⁹ Ibid.

⁵⁰ H. E. Adams and R. N. Vidulich, "Dogmatism and Belief Congruence in Paired-Associate Learning," Psychological Reports, 1962, 10, pp. 91-94.

fact, individuals exhibiting closed personality systems differed from individuals exhibiting open systems in their learning ability.

Each subject learned two paired-association lists of non-stimulus and adjective response words on a two record exposure memory drum. One list contained 15 belief congruent word pairs; the other list contained 15 belief-incongruent word pairs.

Following one familiarization exposure of the first-presented list, subjects were requested to pronounce each response adjective at the appearance of each stimulus noun, and prior to the opening of a shutter apex exposing the response word. Three consecutive errorless trials was the learning criterion used. The second list was then presented to subjects using an identical procedure.⁵¹

So that temporal presentation of the congruent and incongruent response lists would not be confusing, two stimulus noun lists (A and B) and two response adjective lists (congruent and incongruent) were used (see Table 3.7). Each subject received one of the two stimulus lists and one of the two response lists at his first learning task, and the other stimulus and response lists as his second task.⁵²

The results of analysis are shown in Table 3.8. Analysis of variance was the statistical tool utilized to generate the data results.

⁵¹ Ibid.

⁵² Ibid.

TABLE 3.7

STIMULUS AND RESPONSE LISTS

Stimulus A	Stimulus B	Congruent Response	Incongruent Response
Hobo	tramp	poor	rich
Lord	God	holy	evil
Negro	colored	ignorant	intelligent
Commies	Communists	ruthless	humane
pig	hog	dirty	neat
mom	mother	chaste	wanton
South	Dixie	attractive	ugly
darkie	nigger	awkward	skilled
northerner	Yankee	vulgar	refined
physician	doctor	ethical	unreliable
Stalin	Khrushchev	mean	kind
rebel	southerner	sociable	unfriendly
desegregation	integration	wrong	right
liberty	freedom	good	bad
preacher	minister	honest	lying

Source: H. E. Adams and R. N. Vidulich, "Dogmatism and Belief Congruence in Paired-Associate Learning," Psychological Reports, 1962, 10, pp. 91-94.

TABLE 3.8

ERRORS MADE BY HIGH AND LOW DOGMATIC SUBJECTS ON CONGRUENT
AND INCONGRUENT PAIRED-ASSOCIATE LISTS

A. Analysis of Variance								
Source		df		MS		F		p
Dogmatism (D)		1		1022.0		26.54		<.01
Error Between		34		38.5				
Congruence (C)		1		741.0		5.20		<.05
Interaction (D X C)		1		570.0		4.00		
Error Within		34		142.3				
B. Mean Comparisons								
Group	N	Associations				Diff.	t	p
		Congruent		Incongruent				
		M	SD	M	SD			
High	18	16.72	10.8	25.11	10.3	8.39	2.15	<.05
Low	18	9.50	7.1	13.94	8.7	4.44	1.14	
Diff.		7.22		11.17				
t		3.14	(p<.01)	3.49	(p<.01)			

Source: H. E. Adams and R. N. Vidulich, "Dogmatism and Belief Congruence in Paired-Associate Learning," Psychological Reports, 1962, 10, pp. 91-94.

In the analysis the following major findings were obtained.

- (a) Significantly more errors were made learning the incongruent than the congruent associations by all subjects combined ($F = 5.20$).
- (b) Mean comparisons reveal that the closed system group contributes a disproportionate share of the variance of this difference. Significantly more errors were made by the closed system group on the incongruent associations than on the congruent associations ($t = 2.15$), while the open system group did not differ significantly on this comparison ($t = 1.14$). The closed system group made more errors than the open system group learning congruent as well as incongruent associations ($F = 26.54$), indicating that closed system subjects generally had more difficulty on this complex verbal learning task.⁵³

In another study, Long and Ziller⁵⁴ examined the relationship between open-closed personality systems, problem-solving, and pre-decisional information search. In the study a negative relationship was hypothesized between dogmatism and predecisional research and problem-solving.

In the research effort 72 subjects were administered the dogmatism scale and then required to complete two decision tasks and an opinion scale.

⁵³ Ibid.

⁵⁴ Barbara H. Long and Robert C. Ziller, "Dogmatism and Pre-decisional Information Search," Journal of Applied Psychology, 1965, Vol. 49, No. 5, pp. 376.378.

The first decision task involved word completion problems. In the four word problems, subjects were initially presented with the first letter of a word and were required to identify the word. The subjects could delay decision as often as desired. With each delay, the subject was presented with an additional letter of the word, which cost one point. Ten points were awarded for a correct decision, but the subject was not informed whether or not his decision was correct. This system of points was utilized in order to prevent a generalized set for obtaining maximum information. Scores in this task consisted of the number of decision delays.⁵⁵

The second decision task involved the use of concept information problems. The format of the six concept tasks was similar to that of the word tasks. The subjects were required to decide upon a concept consisting of one or more attributes (such as, "red" or "a red square with a single border"). A positive exemplar of the concept was presented initially, and each decision delay obtained an additional exemplar which contained one bit of information (reduced possible solutions by one-half) and which cost one point. Ten points were awarded for a correct decision. The expected value (the product of the probability of correctness and the net gain in points) was greater at each successive decision point. Thus, one rational strategy would consist of making the maximum number of delays (when all information needed for a correct solution would have been

⁵⁵ Ibid.

acquired). Scores consisted of the number of decision delays.⁵⁶

Finally the subjects were required to complete the Withholding Opinion Scale. The Withholding Opinion Scale consists of 38 statements of opinion with no basis in fact, such as "Man will be on the moon by 1967," or "There is life on other planets." The subjects may agree, disagree, or respond "don't know" to each item. Scores consist of the number of "don't know" responses.

This scale was utilized to determine the subject's tendency to reply under conditions of scarce information. In problem-solving terms, the "don't know" response may be interpreted as a recognition of the existence of a problem - that information at hand is inadequate for a rational judgment. The "don't know" response thus appears to be a necessary precedent condition for predecisional information search.⁵⁷ The results of the author's statistical analysis appears in Table 3.9.

As can be seen, the intercorrelations between the three measures used and dogmatism, all yielded negative relationships. All of the relationships were significant at $p \leq .05$.⁵⁸

These negative relationships support the initial research hypotheses and indicate that in a decision-making situation the open-system individual (nondogmatic) tends to delay decisions or reserve judgments, and to search for and utilize additional

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid.

TABLE 3.9

INTERCORRELATIONS BETWEEN THE DOGMATISM SCALE,
THE FOUR DECISION MEASURES, AND THE
VERBAL PART OF THE SCAT

(N = 72)

	Concept	Word	WO
Dogmatism	-.24	-.28	-.32
Concept	(.80)	.53	1.6
Word		(.65)	.26
WO			(.67)

Source: Barbara H. Long and Robert C. Ziller, "Dogmatism and Predecisional Information Search," Journal of Applied Psychology, 1965, Vol. 49, No. 5, pp. 376-378.

information.⁵⁹ The negative relationship between dogmatism and the Withholding Opinion Scale suggests that the dogmatic individual fails to perceive the existence of a problem in his environment and is therefore less instrumental in solving problems. This inference is supported by the intercorrelations in Table 3.9.⁶⁰

Overall, the research reviewed in this section can be described as being supportive of Rokeach's basic premise concerning open-closed personality systems, learning, and problem solving. It is apparent

⁵⁹ Ibid.

⁶⁰ Ibid.

that individuals exhibiting closed personality systems do have greater difficulty in problem solving and in learning new cognitive sets. These three articles represent the empirical research conducted relative to dogmatic, learning, and problem solving. The brevity of the research in this area, discovered from the works of Rokeach himself, can be accounted for by the detailed research presented in Rokeach's text.⁶¹

In relation to marketing, the research findings of these social scientists, relative to open-closed personality systems, learning and problem-solving could possibly provide a new research direction for marketing researchers in certain areas of consumer behavior. For example, the ability to describe a dimension of individual learning and problem solving behavior in terms of a single construct (dogmatism) could provide new direction in researching the learning of brand loyalties in the market place.

These research findings might also be integrated into future attempts at model building. Most all of the "models" of consumer behavior currently in vogue, may be classified as either stimulus-response (learning) models or decision theory models which deal with behavior in a problem solving context.⁶² The concept of open-closed personality systems is, as has been shown, particularly relevant for describing problem-solving and learning in the individual

⁶¹ See Milton Rokeach, et al., op. cit., Chapters 8-10.

⁶² Harold H. Kassarian and Thomas S. Robertson, Perspectives in Consumer Behavior, Scott, Foresman and Company, New York, N.Y., 1968, pp. 439-511.

and could possibly aid in future efforts directed at modeling consumer behavior.

Similar areas of application can be shown to exist relative to dogmatism and the maintenance of cognitive consistency, and dogmatism and perception. These areas will be given attention in the following sections.

OPEN-CLOSED PERSONALITY SYSTEMS AND MAINTENANCE OF COGNITIVE CONSISTENCY

A relatively large body of research data has accumulated over time, suggesting that persons tend to arrange the elements of their cognitive systems in such a way as to minimize inconsistency.⁶³ Much of this research has focused on the general mechanisms by which cognitive inconsistency is avoided or reduced, but little attention has been given to researching individual differences which may affect these processes.⁶⁴

In the limited research which has dealt specifically with individual differences in the maintenance of cognitive consistency, dogmatism has received some attention. This attention was a result, once again, of the works of Rokeach. In several studies

⁶³ For examples see: Leon Festinger, A Theory of Cognitive Dissonance, Standord University Press, 1957; Leon Festinger, Conflict, Decision, and Dissonance, Stanford University Press, 1964; and J. W. Brehm and A. R. Cohen, Explorations in Cognitive Dissonance, John Wiley and Sons, New York, N.Y., 1962.

⁶⁴ Robert Kleck and Jerry Wheaton, "Dogmatism and Responses to Opinion-Consistent and Opinion-Inconsistent Information," Journal of Personality and Social Psychology, 1967, 2, pp. 249-254.

Rokeach⁶⁵ has shown that individuals exhibiting closed personality systems give more concrete and much narrower definitions of religious and political concepts. This led Rokeach and his fellow researchers to hypothesize and then confirm that individuals with closed personality systems tended to utilize fewer conceptual categories for segmenting social phenomenon and tend to rigorously avoid opinion-inconsistent information flaws.⁶⁶

In response to Rokeach's research results, Kleck and Wheaton⁶⁷ engaged in research to determine if individuals exhibiting closed personality systems differed from individuals exhibiting open personality systems in their reaction to opinion-consistent versus opinion-inconsistent information. Specifically, the researchers were examining two hypotheses. The first hypothesis was that individuals with closed personality systems would exhibit a lower recall of opinion-inconsistent information after exposure to such information. The second hypothesis being tested was that, once exposed to opinion-inconsistent information, the dogmatic personality would evaluate the opinion-inconsistent information less favorably than

⁶⁵ Milton Rokeach, "Narrow-Mindedness and Personality," Journal of Personality, 1951, 20, pp. 234-251; Milton Rokeach, Martha Andrews, and Frank Restle, "Differences Between Open and Closed Minded Subjects on Learning and Oddity Problems," Journal of Abnormal and Social Psychology, 1964, Vol. 68, No. 6, pp. 648-654; and Milton Rokeach, The Open and Closed Mind, Barn Books, Inc., New York, N.Y., 1960.

⁶⁶ Milton Rokeach, "Narrow-Mindedness and Personality," Journal of Personality, 1951, 20, pp. 234-251.

⁶⁷ Robert Kleck and Jerry Wheaton, op. cit.

the individual exhibiting an open personality system.

In the research, the subjects were male and female juniors recruited from a regional high school in western Massachusetts to participate in a study of certain teen-age attitudes and opinions. The issue chosen on experimental focus was that of the age at which drivers' licenses are issued. This issue was previously determined to be one of high salience and one on which one could expect high agreement. The other items included attitudes toward popular music, going steady, clothes, and delinquency.

To generate the research data, the subjects were required to undergo a public commitment procedure. Each subject appeared before a well-dressed college student who asked the subject to verbalize his feelings on the issues of popular music and the minimum driving age. Subsequently, all subjects were given the choice of reading additional information relevant to the driving-age issue which either favored the status quo (16 years), or which favored raising the minimum age level (18 years). This information was contained in two fictitious newspaper articles carefully structured to be equal in strength of argument and in factual documentation. The opinion espoused in each of these articles was clearly indicated by their titles. The experimenter explained that there would probably not be enough copies of the articles to go around, and therefore the subjects should choose the one they most wanted to read. After the choice had been made, the experimenter reported that a recount of the copies of the two articles indicated that there would be sufficient numbers for everyone to read both. Copies were distributed so that one-half of the

subjects received the preferred article and one-half received the nonpreferred article first. Both articles were followed by four evaluative scales and required each subject to express his opinion as to (a) how informed the author was, (b) how clear the arguments were, (c) how biased the author was in his approach, and (d) how valid the conclusions were. As soon as the subject had read and evaluated the first article he was given the second.⁶⁸

Two weeks later all subjects were given a test "to see what they remembered from the articles on teen-age driving." This test was composed of multiple-choice items based on the two articles with items randomized in regard to the article source. The general nature of the experiment was outlined to the subjects, and their reactions to the various procedures were solicited.⁶⁹

The actual data analysis was based on 72 subjects who completed the experimental sessions. In the analysis of the data, each of the hypotheses were confirmed.⁷⁰

Table 3.10 shows the results of the analysis of variance of subject recall scores. The analysis clearly supported the hypothesis that dogmatic individuals do recall less from opinion-inconsistent information than open-minded subjects. The results were significant at $p < .05$ with a t -value of 2.22 at $df = 70$.⁷¹

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Ibid.

TABLE 3.10

ANALYSIS OF VARIANCE OF RECALL SCORES

Source	MS	F
Between Subjects		
Open-closed (A)	0.17	
Public commitment (B)	2.51	1.39
A X B	0.84	
Error	1.81	
Within		
Consistent-inconsistent (C)	3.67	2.10
A X C	14.06	8.03
B X C	1.17	
A X B X C	0.56	
Error	1.75	

Source: Robert Kleck and Jerry Wheaton, "Dogmatism and Responses to Opinion-Consistent and Opinion-Inconsistent Information," Journal of Personality and Social Psychology, 1967, 2, pp. 249-254.

Table 3.11 shows the results of the analysis of variance of subject evaluation scores.

TABLE 3.11

ANALYSIS OF VARIANCE OF EVALUATION SCORES

Source	MS	F
Between Subjects		
Open-closed (A)	16.67	1.82
Public commitment (B)	11.67	1.28
A X B	15.34	1.68
Error	9.14	
Within		
Consistent-inconsistent (C)	502.51	39.48
A X C	82.51	6.48
B X C	5.84	
A X B X C	18.06	1.42
Error	12.73	

Source: Robert Kleck and Jerry Wheaton, "Dogmatism and Responses to Opinion-Consistent and Opinion-Inconsistent Information," Journal of Personality and Social Psychology, 1967, 2, pp. 249-254.

These results support the hypothesis that dogmatic individuals will evaluate opinion-consistent information more favorably and opinion-inconsistent information less favorably than will open-minded subjects.⁷² These results were also significant at $p < .05$ with a t-value of 1.99 at $df = 70$.

These results substantiate the premise that individuals exhibiting closed-personality systems apparently have a relatively low tolerance for cognitive inconsistency. Such individuals tend to avoid inconsistent information and seek out information which supports their present opinions and beliefs.⁷³

In a similar study, Hunt and Miller⁷⁴ arrived at very similar conclusions. These researchers examined the possibility that closed-minded individuals would also demonstrate less tolerance for inconsistency in situations involving subsequent preparation of belief-discrepant communications.⁷⁵ Rokeach has stated that closed-minded persons should generally avoid exposure to belief-discrepant information. If this is true, closed-minded individuals faced with the task of encoding belief-discrepant communications

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Martin F. Hunt and Gerald Miller, "Open- and Closed-Mindedness, Belief-Discrepant Communication Behavior, and Tolerance for Cognitive Inconsistency," Journal of Personality and Social Psychology, 1968, 8, pp. 35-37.

⁷⁵ Ibid.

might be expected to show low tolerance for inconsistency for two reasons. First, unfamiliarity with the discrepant beliefs should lead to relatively high tension arousal. Second, knowledge that a belief-discrepant message must be prepared should carry with it the perception of substantial effort, a factor influencing magnitude of inconsistency.⁷⁶ By contrast, open-minded individuals, because of more extensive prior exposure to discrepant beliefs, should experience less tension and should anticipate less effort in the construction of belief-discrepant communications.

In conducting the research, 77 students in an introductory communications course at Michigan State University were asked to complete a test instrument which yielded their relative dogmatism scores and their attitudes toward three controversial issues. Since every subject indicated favorable attitudes toward disarmament, this issue was chosen for manipulation.

Three weeks later, the first experimenter entered the class and announced to the subjects that he represented a faculty-student committee contracted by a government agency to sample faculty-student views concerning national issues. In his remarks, the experimenter emphasized that the subjects' communications would subsequently be examined by others. All subjects then received forms containing instructions for preparing their communications. One-third of the open- and one-third of the closed-minded subjects were instructed to write their three best arguments opposing

⁷⁶ Ibid.

disarmament (the belief-discrepant communication conditions); one-third were instructed to write their three best arguments favoring disarmament (the belief-congruent communication conditions); and the remaining one-third were instructed to write three best arguments favoring federal aid to education (the irrelevant communication conditions).⁷⁷ The belief-congruent and irrelevant conditions served as controls for assessing base-line posttest attitudes toward disarmament. Finally, subjects were told to prepare these arguments out of class and to bring them to the next class meeting.

After the first experimenter had left, the second experimenter, introduced as a graduate student in political science, told the subjects that he was sampling student political attitudes at Michigan State University. He distributed a questionnaire which included, among a number of filler items, the same six semantic differential scales used to measure pretest attitudes toward disarmament. This ostensible separation of the testing period was intended to minimize the possibility that subjects would associate the tasks.⁷⁸ Each subjects' attitude was determined by summing his responses to the six scales, with a score of 42 indicating maximum favorableness toward disarmament and a score of 6 an maximally unfavorable attitude.⁷⁹

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

The results of the researchers analysis are shown in Table 3.12.

TABLE 3.12

PRETEST-POSTTEST MEAN ATTITUDE SCORES AND
AMOUNT OF CHANGE FOR SUBJECTS IN
THE SIX CONDITIONS

Condition	Pretest	Posttest	Shift
Belief-Discrepant			
Open-Minded	31.36	31.07	-0.29
Closed-Minded	33.78	27.33	-6.45
Belief-Congruent			
Open-Minded	33.70	34.30	+0.60
Closed-Minded	32.82	32.18	-0.64
Irrelevant			
Open-Minded	36.40	35.90	-0.50
Closed-Minded	32.58	31.50	-1.08

Source: Martin F. Hunt and Gerald Miller, "Open- and Closed-Mindedness, Belief-Discrepant Communication Behavior, and Tolerance for Cognitive Inconsistency," Journal of Personality and Social Psychology, 1968, 8, pp. 35-37.

In the analysis, it can be seen that within-group comparisons yield a significant pretest-posttest attitude change in the closed-minded belief-discrepant condition.⁸⁰ In addition, a comparison of the change scores for subjects in the open-minded belief-discrepant and close-minded belief-discrepant conditions yielded significant results with a t-value of 2.20. Both comparisons were significant at $p < .05$, and both comparisons supported the hypotheses; that closed-minded belief-discrepant subjects demonstrate greater attitude change in the direction of the belief-discrepant portion they were instructed to advocate.⁸¹ These findings are in support of the premise that closed-minded individuals are less tolerant of cognitive inconsistencies. These individuals will engage in attitude change toward a discrepant communication in order to avoid cognitive inconsistency.⁸²

In another research effort, White, Alter, and Rardin⁸³ examined the tendency of closed-minded individuals to engage in selective perception and utilize fewer conceptual categories in segmenting social phenomenon. The specific hypothesis being tested was that

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Ibid.

⁸³ B. Jack White, Richard D. Alter, and Max Rardin, "Dogmatism and Usage of Conceptual Categories," Journal of Personality and Social Psychology, 1965, 2, pp. 293-295.

individuals exhibiting closed personality systems would differ from open system individuals in the manner in which they classify stimuli which are highly relevant to their belief systems.⁸⁴

In order to test the hypothesis, the stimulus materials for the study were chosen to represent two degrees of relevance to closed-minded individuals. Since one of the characteristics of dogmatism is intolerance of behavior which deviates from major social norms, statements describing undesirable social acts were used as stimuli with high relevance. Occupations which varied in prestige were selected as having lower relevance. On the basis of Rokeach's previous research, it was anticipated that subjects who were high on the D scale would manifest greater tolerance of the undesirable social acts by classifying a larger proportion of them in the most undesirable categories and by using fewer categories than subjects who were low on the scales.⁸⁵

In the experiment, 410 introductory psychology students completed the dogmatism scale and then were asked to review 149 occupations and 149 undesirable acts chosen from the list developed by McGarvey.⁸⁶ The prestige of occupations ranged from "street cleaner" to "university president." The undesirable acts ranged from "cheating at solitaire" and "fishing without a license" to such

⁸⁴ Ibid.

⁸⁵ Ibid.

⁸⁶ Hulda McGarvey, "Anchoring Effects in the Absolute Judgment of Verbal Material," Archives of Psychology, No. 281, 1943.

acts as "putting your deformed child in the circus" and "having incestuous relations with your parent."⁸⁷ Each act or occupation appeared on a separate slip of paper in a shuffled packet which was given to each subject to sort.

Each subject was seated at the side of a 3 X 6 foot table which was not in view of other subjects. In sorting the social acts, they were instructed first to look through the packet in order to become familiar with the items, then to sort the items on the basis of undesirability, letting the pile of slips at the far left on the table represent the most undesirable acts.⁸⁸ They were told to "use as many or as few piles as you think are necessary for the sorting." Instructions for sorting the occupations were the same except that they were to be sorted on the basis of prestige, the most prestigious occupations belonging in the pile on the subject's far left.

For purposes of analysis, a Q-sort technique was utilized. Each pile of slips was considered to represent a category. As expected, the closed-minded subjects placed a greater proportion of the acts in the undesirable categories and used significantly fewer categories than open-minded subjects.⁸⁹

The results clearly indicated that high and low dogmatic subjects differ in their classification of belief-relevant stimuli

⁸⁷ Ibid.

⁸⁸ Ibid.

⁸⁹ Ibid.

and that high dogmatic subjects used fewer and broader categories.⁹⁰

Overall, the research viewed in this section, once again, is supportive of Rokeach's basic conceptualization and substantiates the premise that individuals with closed personality systems strive more rigorously to maintain cognitive consistency. The closed system individual actively avoids opinion-inconsistent information, even to the extent of changing peripheral beliefs to conform to inconsistencies when such action is advocated by an authority figure.

In relation to marketing, these research results could again provide new direction for exploring certain consumer purchase behavior phenomenon. From the literature, it is apparent that individuals exhibiting closed personality systems rigorously avoid opinion-inconsistent information flows, engage in less predecisional search for information and often fail to recognize problems in their environment. These findings could be particularly beneficial to marketing managers engaged in designing marketing communications.

For example, the previous research has shown that individuals exhibiting closed personality systems will tend to screen out any opinion-inconsistent information flows or engage in selective distortion of weak information flows to avoid cognitive dissonance. The marketing manager could utilize such knowledge in designing marketing communications which do not present opinion-inconsistent information to individuals exhibiting closed personality systems. (Although the phenomena of selective perception and distortion has

⁹⁰ Ibid.

been generalized to be present in all individuals, the research reviewed has shown it to be a particularly acute phenomenon in individuals exhibiting closed personality systems.) On the other hand, if dissonance creation was the objective of the communication activity, then the message source should represent an accepted authority figure if opinion or attitude change is to be successful when the communication is directed toward closed system individuals.

These research results also suggest to the marketing manager that if he is attempting to bring about problem-recognition, on the part of the consumer, his task will be more difficult when dealing with closed system individuals. Again, the possible use of recognized authority figures may aid in the communication effort with such individuals.

Overall, the research results reported in the previous two sections (dogmatism, learning and problem-solving, and dogmatism and the maintenance of cognitive consistency) have pointed out that nondogmatics, as compared with dogmatics, are less stereotype in their thinking, utilize a wider range of information in decision-making and problem-solving, and exhibit the ability to synthesize a wider range of information in the learning process. These research results led several other authors to examine the relationship between dogmatism and social perception.

PERCEPTION AND OPEN-CLOSED PERSONALITY SYSTEMS

In the studies previously reviewed, as well as most every study which has delved into the nature of the closed personality

system, the crucial cognitive feature distinguishing "open" individuals from "closed" individuals appears to be the failure of the latter to integrate or synthesize new information, social beliefs, and verbal concepts into new and effective combinations. Zagona and Kelly⁹¹ engaged in research to determine if this cognitive description could be extended to complex perceptual experiences.

In the research effort, the authors were comparing open groups and closed groups with respect to their acceptance of a unique visual experience - selected because of its relevance to several aspects of dogmatism theory.⁹² This visual experience is in the form of a brief (eight-minute) but tightly knit film called "Begone Dull Care."⁹³ Jazz music of a novel nature is heard, while on film are shown lines and colors in motion. The visual portion of the film is intended to be synchronous with the music heard. The effective synthesis of the visual and the auditory perceptions into a "unitary" esthetic experience presents a complex challenge to the viewer-listener.⁹⁴

⁹¹ Salvatore Zagona and Marynell Kelly, "The Resistance of the Closed Mind to a Novel and Complex Audio-Visual Experience," The Journal of Social Psychology, 1966, 70, pp. 123-131.

⁹² Ibid.

⁹³ N. McLaren, E. Lambert, and the Oscar Peterson Trio, National Film Board of Canada, International Film Bureau, 1949.

⁹⁴ Zagona and Kelly, op. cit.

The specific hypotheses being tested were that (a) high dogmatics would be less accepting of this novel audio-visual experience than would low dogmatics; and (b) this difference in acceptance results from the novelty and lack of structure of the film, and (more importantly) the synthesizing demands it makes upon the viewer.⁹⁵ Utilizing 515 dogmatism scores provided by introductory psychology students, the 44 lowest scores and the 44 highest scores were asked to serve as subjects in a study.

Assembled, all the subjects were shown the film "Begone Dull Care." They were then asked to evaluate the film on an eight-point rating scale ranging from "extremely enjoyable experience" to "extremely distasteful experience." Subjects were also asked to evaluate the film and its creators by circling selected descriptive adjectives. In addition, a scale consisting of 12 Likert-type items concerning the film was given.⁹⁶ The results of the analysis are shown in Table 3.13.

In the analysis, high-dogmatic subjects were less accepting of the film, as indicated by the rating scale. The means formed a consistent trend that was statistically significant at $p \leq .01$, with an F-ratio of 4.15.⁹⁷

In testing the second hypothesis, the differences among the four groups show up clearly in the answers to 12 questions concerning

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

TABLE 3.13

MEAN SCORES ON SELECTED EVALUATIVE PROCEDURES
FOR FOUR GROUPS DIFFERING IN DOGMATISM

Evaluative procedure	Mean				F	p
	Very high D	High D	Low D	Very low D		
Eight-point rating scale	4.0	2.8	2.4	2.2	4.15	.01
Adjectives						
Creators	13.8	13.7	13.4	14.6	.37	n.s.
Film	13.4	13.5	13.1	12.9	.03	n.s.
Film questionnaire	28.7	30.8	25.6	22.4	7.89	.001

Source: Salvatore Zagona and Marynell Kelly, "The Resistance of the Closed Mind to a Novel and Complex Audio-Visual Experience," The Journal of Social Psychology, 1966, 70, pp. 123-131.

the film. These questions were designed to explore the underlying reasons for differential reactions to the film by these groups. Eleven of the 12 questions differentiated among the groups in the expected direction. The F test comparison is 7.89, significant beyond the .001 level.⁹⁸

These results indicate that closed system individuals disliked the film significantly more than open-system individuals due to its novelty, lack of structure, and synthesizing demands.⁹⁹

⁹⁸ Ibid.

⁹⁹ Ibid.

Effectively, this experiment shows dogmatism to be a significant variable for predicting perceptual reactions to complex audio-visual experiences and once again is supportive of research reported in the previous sections of this chapter.

In another study directed specifically at identifying perceptual differences between individuals exhibiting open-closed personality systems, Burke¹⁰⁰ attempted to determine if nondogmatics were more socially perceptive than dogmatics. Social perception was defined as encompassing the way the individual "sees" himself in relation to others.

Utilizing a group of 118 undergraduates (86 males, 32 females) at the University of Richmond, the dogmatism scale was administered twice. For the first administration, subjects were given the standard instructions. When all subjects had finished, the original scales were collected and the scale was then administered a second time. The instructions for the second administration were as follows: "As you can see, this is the same scale that you have just completed. This time, however, I would like for you to answer the scale as you believe the 'average' college student would answer it."¹⁰¹ The results of the analysis are shown in Table 3.14. The table summarizes the findings for all 118 subjects, as well as the highest 20% (dogmatics) and the lowest 20% (nondogmatics). The

¹⁰⁰ W. Warner Burke, "Social Perception as a Function of Dogmatism," Perceptual and Motor Skills, 1966, 23, pp. 863-868.

¹⁰¹ Ibid.

TABLE 3.14

DOGMATISM SCORES OBTAINED UNDER TWO
CONDITIONS OF INSTRUCTION

Instructions	Total Group (N = 118)		Low Dogmatics (N = 24)		High Dogmatics (N = 24)	
	M	SD	M	SD	M	SD
Own Dogmatism Score	151.58	21.85	119.50	11.64	179.17	8.77
M Student Score	172.25	24.25	156.54	28.52	185.96	17.28

Source: W. Warner Burke, "Social Perception as a Function of Dogmatism," Perceptual and Motor Skills, 1966, 23, pp. 863-868.

range for the dogmatics was 170 to 199, and the range for nondogmatics was 86 to 133.¹⁰²

The average, actual dogmatism score for the total group was significantly lower than the average, estimated dogmatism score ($t = 9.08$, $p < .001$).¹⁰³ The t test was for correlated means within the groups. Most subjects (96 of the 118), then, estimated that the average college student was more dogmatic than they themselves were. Moreover, the Pearson product-moment correlation between the actual scores and the estimated ones was a significant one

¹⁰² Ibid.

¹⁰³ Ibid.

($r = .43$, $p < .01$).¹⁰⁴ Thus, the low-scoring subjects tended to estimate low scores while the high-scoring subjects tended to estimate high scores.

Although this pattern was fairly consistent for the entire sample, there was a considerable difference in range of estimations by the two extreme groups. More specifically, the average estimate of the dogmatic group was only about 7 points higher than their own mean. This difference was not significant ($t = 1.71$, $p > .05$). The mean estimate of the nondogmatic group, on the other hand, was significantly higher than their own average, i.e., approximately 37 points higher ($t = 5.89$, $p < .001$).¹⁰⁵

These results support the existence of differences in social perception between open system individuals and closed-system individuals. It appears that individuals exhibiting closed personality systems perceive others as being very similar to themselves. Thus, the dogmatic individual would presumably be much less tolerant of others in his environment who differed in opinions and beliefs.¹⁰⁶

These results are also supportive of Rokeach's basic description of the closed system individual. Overall, the findings of

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Ibid.

these two particular studies overlap considerably with previously described research in terms of describing the closed-minded individual. In terms of marketing application, these findings might also be particularly relevant for the promotional efforts of the firm. The available research seems to support the premise that closed system individuals would be less susceptible to complex visual experiences which lack structure or which might be considered sound in their approach to some subject matter.

Such individuals are also less tolerant of others where there exists opinion differences. Given these characteristics, the promotion effort of the firm should avoid novel or unstructured communications in cases where a market segment could be identified as being composed of relatively closed system individuals.

SUMMARY STATEMENTS

Overall, the research presented in this chapter has been in basic accord with the theoretical formulation of open-closed personality systems as advanced by Rokeach. This, however, is not intended to infer that all research findings of social scientists exploring dogmatism have been in agreement with Rokeach's research. A number of studies have failed to support the basic formulization.¹⁰⁷

¹⁰⁷ For examples see: P.A. Hallenbeck, "A Study of the Effects of Dogmatism on Certain Aspects of Adjustment to Severe Disability," Journal of Social Psychology, 1966, 70, pp. 53-58; R.P. Norman, "Dogmatism and Psychoneurosis in College Women," Journal of Consulting Psychology, 1966, 30, pp. 278; A. Webster, "Dogmatism, Mental Health, and Psychological Health in Selected Religious Groups," Dissertation Abstracts, 1967, 22, pp. 4142; and D.L. Watson, "Introsion, Neuroticism, Rigidity, and Dogmatism," Journal of Consulting Psychology, 1967, 31, pp. 105.

Such studies have, however, dealt mostly with abnormal behavior, and several authors have discounted the relevance for application to situations where differences in normal behavior are being studied.¹⁰⁸ In effect, one would have no difficulty in finding that the supportive literature for Rokeach's formulation is much more prevalent than the non-supportive literature.

The particular research viewed in this chapter, within the defined scope, has been supportive of Rokeach's theory and has shown that personality systems can be described in terms of their structure and that, as such, personality structure has behavioral ramifications for individual action. Overall, the closed-system individuals have been shown to be more stereotyped in their thinking, to use fewer conceptual categories and a narrower range of information in decision-making, and lack the ability to synthesize information into meaningful wholes. It has also been shown that such individuals will tend to avoid novel visual experiences and seek consistency in their overall perceptual processes.

It is the purpose of the remainder of the research to determine if personality structure, as defined, is a determinant variable in the product awareness and purchase behavior of individuals. The following chapter will present, in detail, the research design and methodology to be utilized in determining if any relationship exists between personality structure and purchase behavior. This chapter describes the nature of the study, the data collection procedures,

¹⁰⁸ Vacchiano, et al., op. cit.

and examines, in detail, the hypotheses to be examined in the research effort.

CHAPTER IV

RESEARCH DESIGN AND METHODOLOGY

A research design is the plan, structure, and strategy of investigation conceived to obtain answers to research questions.¹ Such designs are invented to allow researchers to answer research questions as validly, objectively, accurately, and economically as possible.²

As conceived, this dissertation represents an investigation into the existence and nature of relationships between personality structure, new product awareness and purchase behavior. In Chapter II, the critical literature relative to personality and purchase-behavior was reviewed in detail. Chapter III represented an explanation of Rokeach's theory of personality systems and a review of the pertinent literature relative to open and closed personality systems.

The purposes of this chapter are to review the nature of the study, to describe the data collection procedures, to explain the construction and rationale of the selected data gathering instruments, and to examine the hypotheses to be tested in the research. The procedures to be reviewed in this chapter will be those used in investigating the existence and nature of relationships between personality structure and consumptive behavior in this dissertation.

¹ Fred N. Kerlinger, Foundations of Behavioral Research, Holt, Rinehart and Winston, Inc., New York, N.Y., 1964, p. 275.

² Ibid.

NATURE OF THE STUDY

This dissertation is representative of what Boyd and Westfall consider descriptive research.³ Descriptive studies, as their name implies, are designed to describe something or to clarify an existing situation.⁴

Descriptive research attempts to obtain complete and accurate description of a situation and is characterized by precise problem statements which indicate what information is required. Such studies are also characterized by statements of specific methods of selecting sources of information and for collecting data from those sources. This type of research is described by Kerlinger as, scientific investigation that examines large and small populations by selecting samples chosen from the population to discover the relative incidence, distribution, and interrelations of sociological and psychological variables.⁵

In essence, the above statements point to the need for a formal research design and research vigor in completing a descriptive study. In referencing this requirement, Boyd and Westfall point out that careful design of descriptive studies is necessary to insure complete description of the situation, to insure the minimum

³ Harper W. Boyd, Jr. and Ralph Westfall, Marketing Research: Text and Cases, Richard D. Irwin, Inc., Homewood, Ill., 1972, p. 51.

⁴ Ibid.

⁵ Fred N. Kerlinger, op. cit., p. 393.

bias in collecting data, to reduce cost to a minimum, and to reduce the error to which the interpretation is subject.⁶

In descriptive study designs the researcher may utilize either the case method or the statistical method.⁷ This dissertation will utilize the statistical method.

The statistical method differs from the case method in two ways. First, it differs in the number of cases to be studied and secondly, in the comprehensiveness of the study of each case.⁸ Case studies deal with a complete and comprehensive study of a few cases, while statistical studies deal with relatively few factors studied in a large number of cases. Instead of comparing individual cases by analogy, the statistical method tends to forget the individual case and to deal instead with classes, averages, and more sophisticated statistical procedures.⁹ It is from these statistical tools for analyzing quantities of data that the term "statistical method" is derived.¹⁰

This method of research has several advantages relative to the case method. One advantage of the statistical method is the ability to make more accurate generalizations because of the number of cases being studied. This method, with a sufficient sample, avoids the

⁶ Boyd and Westfall, op. cit.

⁷ Ibid., p. 53.

⁸ Ibid., p. 61.

⁹ Ibid.

¹⁰ Ibid.

tendency to jump to general conclusions from a few sample cases which may or may not be typical of the universe under consideration. Another advantage of the statistical method lies in the objectivity with which the analysis can be made. Boyd and Westfall point out that two competent researchers, working with the same information, will get the same statistical results.¹¹ This, however, may not be true when working with the case method due to its judgemental nature.

Although the statistical method provides a productive research methodology it is plagued by several disadvantages which should be stressed. One disadvantage of this type of study is that in many instances it may encourage the collection of useless data.¹² It is difficult to start an experimental study without a precise statement of an hypothesis, but it is easy to start a descriptive study with the thought that the data collected will be interesting. Therefore, to be of value, a descriptive study must collect data for a definite purpose and must include interpretation by the investigator. Another disadvantage of this method lies in its inability to prove cause and effect relationships.¹³ This particular disadvantage is, however, present in practically all research in the social sciences,

¹¹ Ibid, p. 61.

¹² Ibid.

¹³ For a detailed discussion of this point see: C. W. Churchman, The Theory of Experimental Inference, The Macmillan Company, New York, N.Y., 1948; and M. R. Cohen and E. Nagel, An Introduction to Logic and Scientific Method, Harcourt, New York, N.Y., 1934, Chapter 13.

and the social scientist, working under such a disadvantage, must be satisfied to infer from observed data that stated research hypotheses are tenable with some specific degree of confidence.¹⁴ An additional disadvantage is that the direction of the causal effect is not always clear in statistical studies.

It can, however, be concluded from the previous statements that the statistical method is an accepted method of conducting behavioral research and in many cases may infer the existence of causal relationship. The social scientists must, however, avoid unwarranted extrapolating and draw conclusions relative only to the subjects under study. This dissertation recognizes this research shortcoming and is largely an attempt to discover contributory conditions relative to personality and purchase behavior given the state of behavioral research methodologies available.

DATA-GATHERING TECHNIQUES

Questioning and observation are the two basic methods of gathering data in behavioral research.¹⁵ This dissertation utilized questioning of sample respondents through personal interviews and secondary research examination as the methods of data-gathering.

The personal interview was chosen mainly because of its flexibility. Ferber and Verdoorn suggest that this data-gathering

¹⁴ Claire Selltitz, Marie Jahoda, Morton Deutsch, and Stuart W. Cook, Research Methods in Social Research, Holt, Rinehart and Winston, Inc., New York, N.Y., 1959, p. 83.

¹⁵ Boyd and Westfall, op. cit., p. 128.

technique is by far the most flexible means of obtaining data,¹⁶ and the data requirements for this dissertation research demands considerable flexibility. Personal interviews are also the most appropriate and most frequently used when research concerns itself with the preceptions of individuals, as this dissertation does in the measuring of personality structure.¹⁷

The personal interview also has other advantages which should be stressed. Green and Tull point out that personal interviews have two distinct advantages over telephone and mail interviews.¹⁸ The personal interview allows the researcher to obtain a better sample, since virtually all of the sample units can be reached and it also gives the opportunity to obtain more information, as it can be of substantially greater length than either a telephone interview or a mail questionnaire.¹⁹

In using the personal interview, the interviewer can also probe for more information when answers are unclear, incomplete or

¹⁶ See Robert Ferber and P. J. Verdoorn, Research Methods in Business and Economics, The MacMillan Company, New York, N.Y., 1962, pp. 207-211.

¹⁷ Charles F. Cannell and Robert L. Kahn, "The Collection of Data by Interviewing," in Research Methods in the Behavioral Sciences, Leon Festinger, (ed.), Holt, Rinehart and Winston, Inc., New York, N.Y., 1953, p. 330.

¹⁸ Paul E. Green and Donald S. Tull, Research For Marketing Decisions, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1970, pp. 156-157.

¹⁹ Ibid.

contradictory.²⁰ However, the potential for introducing interviewer bias must be recognized when probing for responses and the interviewer must be careful to avoid "leading" or "forcing" an answer to a question.²¹ Recognizing this potential for researcher bias, probing was employed in this research only when the respondent gave vague or unclear responses to questions concerning product awareness and purchase patterns with careful attention given to avoid forcing answers on the respondent.

The personal interview also has an advantage relative to the number of questions that can be asked.²² Although the interview in the research was not extensive or extremely lengthy, it required a number of questions greater than could have been asked over the telephone in a reasonable time frame, and as previously mentioned, the instrument used in this research required an interviewer to administer parts of the questionnaire.

Even with these advantages, it should be pointed out that the personal interview has certain limitations as a data-gathering technique. The major limitations of the personal interview lie in its cost and potential response bias that may be induced by poorly trained or improperly selected interviewers.²³ In this research

²⁰ Boyd and Westfall, op. cit.

²¹ Ibid., pp. 135-136.

²² Robert D. Buzzell, Donald F. Cox, and Rex V. Brown, Marketing Research and Information Systems: Text and Cases, McGraw-Hill Book Company, Inc., New York, N.Y., 1969, p. 150.

²³ Ibid.

effort the response bias resulting from such sources were minimized through the use of interviewers who have considerable experience in field interviewing. The interviews were directed, tabulated, and verified by a professional interviewer in the local area with a wide range of interviewing experience.²⁵ Such efforts represent an attempt to minimize interviewer bias and assure accurate data collection.

THE SHORT-FORM DOGMATISM SCALE

The short-form dogmatism scale developed by Troidahl and Powell²⁶ was used as the measuring device for determining the relative openness or closedness of the respondent's personality systems (see Appendix I). This scale, although self-administered, requires the presence of a personal interviewer to give directions to the respondent.

The scale was developed to overcome the primary disadvantage of Rokeach's 40-item scale, namely its length. The original scale required about 30 minutes to administer and this placed somewhat of a burden on both respondent and interviewer time.

The short-form scale was developed utilizing data from several studies. Troidahl, using a sample of 227 Boston respondents, administered the original 40-item scale followed by scales containing

²⁵ A complete description of the interviewing procedure and the individuals involved appear in Appendix I of this research.

²⁶ Verling C. Troidahl and Fredric A. Powell, "A Short-Term Dogmatism Scale for Use In Field Studies," Social Forces, Vol. 44, No. 2, (December 1965), pp. 211-215.

10, 15 and finally 20 items.²⁷ Powell using a Lansing, Michigan sample followed the same procedure to generate data for developing a usable short-form scale.²⁸

To determine how valid the short-form would be, respondent's dogmatism scores on each of the previously discussed scales and short-forms were correlated with their scores on the complete 40-item scale. How well the short-form predicted the 40-item dogmatism scores is indicated by the correlations in Table 4.1. According to these figures, the 20-item scale is a good predictor of what one would obtain using the 40-item version.²⁹

It must be recognized that when using a shorter form of a measuring instrument, it is inevitable that its reliability will be lower than that of the long form. In the field studies previously discussed, the "corrected" split-half reliability "upper limit" was determined to be .84.³⁰ The "lower limit" of reliability obtained in using a short form was determined to be .66.³¹ In summary, the predicted split-half reliability for each version of the scale

²⁷ Verling C. Troidahl, "Mediated Communication and Personal Influence: A Field Experiment," Unpublished Ph.D. Dissertation, University of Minnesota, 1963.

²⁸ Fredric A. Powell, "Open and Closed-Mindedness and the Ability to Differentiate Source and Message," Unpublished Master Thesis, Michigan State University, 1961.

²⁹ Troidahl and Powell, op. cit., pp. 211-214.

³⁰ Ibid.

³¹ Ibid.

TABLE 4.1

CROSS-CORRELATIONS BETWEEN BOSTON-LANSING STUDIES IN DETERMINING THE VALIDITY OF TEN TO TWENTY ITEM SCALES

	Original Boston Data	Lansing Cross- Validation
10-item vs. 40-item score	.88	.79
15-item vs. 40-item score	.91	.73
20-item vs. 40-item score	.95	.94

Source: Verling C. Troidahl and Fredric A. Powell, "A Short-Term Dogmatism Scale for Use In Field Studies," Social Forces, Vol. 44, No. 2, (December 1965), pp. 211-215.

appears in Table 4.2.³² Troidahl and Powell point out that the 20-item version should be used with no reluctance in field studies.³³

This scale, however, provided only half of the necessary research data for analysis. The next step in the research was to gather data pertaining to product awareness and purchase behavior.

MEASURES OF NEW PRODUCT AWARENESS AND PURCHASE BEHAVIOR

To obtain a measure of new product awareness, a modified version of the instrument used by Muse and Kegerreis in studying new product purchase behavior was used.³⁴ The respondents were

³² Ibid.

³³ Ibid.

³⁴ William Muse and Robert Kegerreis, "New Product Awareness and Purchase Behavior," Marquette Business Review, Vol. 16, No. 1, 1972, pp. 19-28.

TABLE 4.2

RELIABILITY VALUES FOR TEN TO FORTY ITEM SCALES

Scale	Reliability
40 items	.84
20 items	.79
15 items	.73
10 items	.66

Source: Verling C. Troidahl and Fredric A. Powell, "A Short-Term Dogmatism Scale for Use in Field Studies," Social Forces, Vol. 44, No. 2, (December 1965), pp. 211-215.

first given a product category (one of the categories previously discussed) and asked to name any new products of which they were aware (unaided recall). This was done for each product category. They were then given the compiled list of new products, listed in their respective category, and asked if they recognized any of these (aided recall). A list of additional new products was also recorded other than the ones on the list and mentioned by the respondents in unaided recall. This constituted the additional new product score.

In gathering the above data from respondents, the potential for response bias should be recognized. As Boyd and Westfall point out, the situation in which a person is questioned about routine actions is an artificial one at best and respondents may give

answers quite different from the facts.³⁵ Cannell and Kahn point out, however, that much experience indicates that such limitations on interview subject matter are not to be rigidly assumed.³⁶ Therefore, in this research the verbal behavior of respondents was accepted as being truthful.

From these data an index of new product awareness was constructed as follows:

$$NPA = \frac{x + y + z}{p + z}$$

where:

x = number of products identified via aided recall

y = number of products identified via unaided recall

z = number of additional new products identified

p = number of original products studied

Thus, the index was a ratio of the number of products identified to the number of products in the respondents frame of reference.

In the research effort, the above measure was also split to allow the researcher to examine the relationship, if any,

³⁵ Boyd and Westfall, op. cit., p. 135.

³⁶ Charles F. Cannell and Robert L. Kahn, "The Collection of Data by Interviewing," in Research Methods in The Behavioral Sciences, edited by Leon Festinger and Daniel Katz, Holt, Rinehart and Winston, Inc., New York, N.Y., 1956, p. 531.

between separate components of the new product awareness score and personality structure. Separate measures of aided recall ($\frac{x + z}{p + z}$) and unaided recall ($\frac{y}{p + z}$) were analyzed in relation to the identified personality structure. This procedure allowed for determining if there are significant relationships between component scores of the awareness index, as well as the composite score.

The research is also interested in determining purchase behavior of the respondents. A measure of purchase behavior was constructed as follows:

$$PB = \frac{N}{P + Z} \quad ^{37}$$

where:

N = number of products purchased

P = number of original list of products

Z = number of additional products identified

The index was a ratio of the number of new products purchased to the number of products within the respondent's frame of reference. These measurements (aided recall, unaided recall, new product awareness and purchase behavior) constituted the major data requirements of this research, and allowed for the testing of specific hypotheses concerning the relationship, if existent, between

³⁷ Ibid.

personality structure and purchase behavior.³⁸

Attention was also directed toward a selected demographic variable which may have an impact on the purchase behavior scores of respondents in this particular research effort. The variable to be considered is the existence or non-existence of children in the family. A number of other demographic variables can be shown to be of little importance given the selected sample and the type of goods to be utilized in this study.

For example, given the utilization of a student housewife sample, one might expect that certain other demographic variables besides the existence of children in the family would be quite crucial to the research findings. One might expect that the relatively low family income of the student sample might introduce a downward bias in the measurement of purchase behavior. One might also expect that if the wife maintained a job position to support the family, her new product awareness score might be biased downward, due to a limited exposure to day-time television and other media sources.

There exists, however, empirical evidence which point out that these particular problems are not as crucial as one might expect them to be. In attempting to define the characteristic of convenience goods shoppers, W.T. Anderson, Jr., provides some insight

³⁸ Complete instruments for measurement of personality structure, new product awareness and purchase behavior appear in Appendix I of this research.

into the relative importance of income in convenience goods shopping.³⁹

In the Anderson study measures of convenience food orientation were established as a function of; (a) number of items served in a week, and (b) average frequency of use. The one item which was of considerable significance, at all confidence levels, was stage in the family life cycle.⁴⁰ Overall, income was shown to be unimportant in convenience goods shopping with incomes ranging from a low of \$5,000 to a high of \$14,000. Further investigation led to a number of other studies which also support the inadequacy of income as a critical determinant in "convenience goods" buying.⁴¹

The concern with the occupational status of the wife might be considered pertinent to the measure of new product awareness. It may logically be assumed that if the wife works full-time there is a high probability that her awareness score will be biased downward. This would be due to her limited exposure to various media sources during the work day. However, research does not collaborate this

³⁹ W.T. Anderson, Jr., "Identifying the Convenience-Oriented Shopper," Journal of Marketing Research, Vol. 8, No. 2, (May 1971), pp. 179-184.

⁴⁰ Ibid.

⁴¹ Charles King, "Adoption and Diffusion Research in Marketing: An Overview," Science, Technology and Marketing, Raymond Hass (ed.), American Marketing Association, Chicago, Ill., 1966; and E.A. Pessimier and D.J. Tigert, "Personality, Activity, and Attitude Predictors of Consumer Behavior," New Ideas for Successful Marketing, John S. Wright (ed.), American Marketing Association, Chicago, Ill., 1966, pp. 332-347.

point either. In fact, research has shown that when dealing with low-risk convenience goods the most significant source of information is word-of-mouth.⁴² Research has also shown that the wife's occupational status does not significantly affect her awareness or purchase behavior with the exception of the temporal dimension.⁴³ The implications here being that working wives may have to shop in the late afternoon or evenings or even weekends, but this causes no significant changes in what she actually purchases.⁴⁴

Given the preceding information, this study included a family life cycle demographic to determine if the existence of children in the family influenced product awareness and purchase behavior. This variable was quite significant in the Anderson study in explaining the convenience food orientation.⁴⁵ Thus, it may be significant relative to the respondent's awareness and purchase index scores in this study.

The concern in this research was strictly between existence versus non-existence of children. The homogeneity in age of the population eliminates the need to use life-cycle breakdowns in any

⁴² Jagdish Sheth, "Word-of-Mouth In Low Risk Innovations," Journal of Advertising Research, Vol. 11, No. 3, (June 1971), pp. 15-19.

⁴³ Clark Wilson, "Homemaker Living Patterns and Marketplace Behavior - A Psychometric Approach," New Ideas for Successful Marketing, John S. Wright (ed.), American Marketing Association, Chicago, Ill., 1966, pp. 305-331.

⁴⁴ Ibid.

⁴⁵ Ibid.

detail beyond the children-no children category.

Age, as a demographic variable, should not be critical as a differentiating variable due to the relative homogeneity in the ages of the population. Sex of the respondent will also be inconsequential in the research because only female respondents were interviewed. In effect, the use of this homogeneous sample enabled the researcher to deal directly with the relationship between personality structure and new product awareness, and personality structure and purchase behavior, and thus effectively avoid a number of possible interfering variables.

Overall, in reviewing the choice of sample, there exist no empirical evidence in support of differentiating student wives from housewives in general.⁴⁶ Given the nature of the product groups (i.e., convenience goods items) it can be shown that the traditional demographic variables of income and occupational status will play a limited role and should introduce no bias⁴⁷ and that other demographic variables (i.e., age, sex) will be inconsequential due to the homogeneity of the sample.

SAMPLING PROCEDURE

The population for this study consisted of 578 student wives residing in married student housing at Louisiana State University.

⁴⁶ See for example, Ben M. Enis, Keith K. Cox, and James E. Stafford, "Students as Subjects in Consumer Behavior Research," Journal of Marketing Research, Vol. 9, (February 1972), pp. 72-74; and Jagdish W. Sheth, "Are There Differences In Dissonance Reduction Behavior Between Students and Housewives?," Journal of Marketing Research, Vol. 7, (May 1970), pp. 243-245.

⁴⁷ W.T. Anderson, Jr., op. cit.

This population was chosen for several reasons, the main ones being availability and expediency. However, it was also believed that the population to be sampled was behaviorally representative of housewives in general, even though research efforts have at times been criticized for using students in lieu of housewives and businessmen.

In response to possible criticism of the choice of a population, it must be pointed out that there exists no substantive basis for such criticism beyond researcher preference, and attempts to find distinct behavioral differences between students and housewives and the general population have proven themselves to be inconclusive.⁴⁸ It has also been suggested that until substantive differences are identified, there is no reason for avoiding student samples when they are available for use.⁴⁹

A non-probability sample of 200 population members was utilized to generate the research data. Non-probability sampling is accepted by respected researchers⁵⁰ and has been cited as being appropriate in exploratory research and in attitude research where the main determinant of the attitude is already incorporated in the

⁴⁸ See for example: Ben M. Enis, Keith K. Cox, and James E. Stafford, "Students as Subjects in Consumer Behavior Research," Journal of Marketing Research, Vol. 9, (February 1972), pp. 72-74; and Jagdish W. Sheth, "Are There Differences in Dissonance Reduction Behavior Between Students and Housewives?," Journal of Marketing Research, Vol. 7, (May 1970), pp. 243-245.

⁴⁹ Ibid.

⁵⁰ Boyd and Westfall, op. cit., p. 432.

population.⁵¹ In such cases, it is felt that variation in the sample will be of small consequence due to the homogeneity of the population relative to the particular construct under consideration and that representativeness is of little importance.

The rationale for utilizing non-probability sampling in marketing research is also cited by Mayer and Brown⁵² in a presentation which develops an algorithm for measuring various aspects of sampling error. These authors suggest that in any randomly selected sample, differences in true value and sample result, arising out of measurement error (response and non-response errors) and improper sample frames are totally neglected.⁵³ Mayer and Brown conclude that there effectively exist no way to appraise objectively the "quality" of any sample results.⁵⁴ Therefore, non-probability sampling should not be excluded as a sample design simply because of its weak theoretical base. If a researcher can justify the use of the procedure, then it should be considered acceptable for use.⁵⁵

⁵¹ Ferber and Verdoorn, op. cit., p. 252.

⁵² Charles S. Mayer and Rex V. Brown, "A Search for the Rationale of Non-Probability Sample Designs," Marketing and Economic Development, Peter D. Bennett, (ed.), Proceedings American Marketing Association, 1965, pp. 295-308.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

For the purposes of this research, it has been shown that an open or closed personality structure is, in fact, incorporated in the individual at an early stage in life.⁵⁶ All members of the population, therefore, can be considered to exhibit a relatively open or closed personality system and, therefore, the representativeness of the sample, is not a real issue in this dissertation. Non-probability sampling will also allow for selection of American housewives from a population which includes a relatively large number of foreign student wives, and thus aid in avoiding any language problems.

The sample respondents to be utilized in the research were generated from a list of the population provided by Men's Housing, Louisiana State University. Each respondent was contacted by telephone to arrange an interview time at their convenience and the data obtained through these interviews provided the input for analysis.

CONSTRUCTION OF THE INTERVIEWING INSTRUMENT

The interviews in the research were designed to gather information relative to individual personality structure, new product awareness, and purchase behavior. The instrument used may be discussed in two sections.

The first section of the interview required the respondent to reply to a 20-item scale in terms of his preceptions. In each

⁵⁶ See for example: Martin T. Rebhun, "Parental Attitudes and the Closed Belief-Disbelief System," Psychological Reports, 1967, 20, pp. 260-262; and Dorin Byrne, "Parental Antecedents of Dogmatism," Journal of Personality and Social Psychology, 1965, 1, pp. 369-373.

instance the respondent had to mark a response on a six point scale ranging from "very strongly agree" to "very strongly disagree". In this context, the first part of the interview instrument was highly structured.

The second part of the interview instrument is described by Selltitz, Jahoda, Deutsch and Cook as an unstructured "focused" interview.⁵⁷ In this type of interview, the main functions of the interviewer is to focus attention upon a given experience.⁵⁸ The interviewer knows in advance what topics or aspects of a question he wishes to cover.

In this section the respondent was asked questions relative to her awareness of certain new products and her purchases of these products. The procedure was quite simple. The respondent was given a product category (coffee, snack foods, etc.) and asked if she was aware of any new products in this category. The responses were immediately recorded. The respondent was then handed a list containing product categories with brand names of new products appearing in each category. The interviewer then asked the respondent if she was aware of any of these products. These responses were also immediately recorded.

The data gathered with this instrument constituted the input for formulating the measures of new product awareness and purchase behavior previously discussed. These measures were then used in

⁵⁷ Selltitz, Jahoda, Deutsch, and Cook, op. cit., p. 263.

⁵⁸ Ibid.

testing the specific hypotheses of the research.

HYPOTHESES TO BE EXAMINED

The data gathered will be analyzed in order to test the following hypotheses;

- H₁ High D scorers do not differ significantly from low D scorers in measures of new product awareness.
- H_{1.1} High D scorers do not exhibit lower unaided product recall scores than low D's.
- H_{1.2} High scorers do not exhibit lower aided product scores than low D's.
- H_{1.3} High D scorers do not exhibit lower additional new product scores than low D's.
- H₂ High D scorers do not differ significantly from low D scorers in scores of purchase behavior.
- H_{2.1} High D scorers do not exhibit a lower frequency of purchase behavior scores than D's.
- H₃ The presence of children in the family do not significantly affect new product awareness scores of respondents.
- H_{3.1} The presence of children in the family do not significantly affect purchase behavior scores of respondents.

It is expected that individuals exhibiting high D scores (closed personality structures) will be less aware of new products, as listed, and will have a narrower product frame of reference than low D scorers. That is, they will identify fewer products in both aided and unaided recall. It is also expected that individuals with high D scores will have purchased fewer new products, of which they are aware exist, than individuals with low D scores.

STATISTICAL TESTS OF THE HYPOTHESES

In testing the previously discussed hypotheses, three statistical tests will be employed.⁵⁹ The Kolmogorov-Smirnov two sample test⁶⁰ will be utilized as the test of goodness of fit. This test will allow the researcher to determine if significant differences exists between high-D and low-D subjects relative to the measures of aided recall, unaided recall, new product awareness, and purchase behavior. This measure of association will be followed by two other statistical tests directed at determining the "significance" of the observed association.

The tests of significance to be employed are; Spearman's rank order correlation coefficient (r_s) and Kendall's partial rank correlation coefficient.⁶¹

All of the above tools of analysis are classified as nonparametric statistical tests and are utilized in this research due to the inappropriateness of the more traditional parametric techniques. The "measurement strength" of the data attained in this research prohibits the use of parametric tools without serious and questionable

⁵⁹ A complete description of the statistical tests to be utilized and examples of their use are found in Appendix II of this research.

⁶⁰ Sidney Siegel, Nonparametric Statistics For The Behavioral Sciences, McGraw-Hill Book Company, Inc., New York, N.Y., 1956, pp. 18-34.

⁶¹ Ibid.

violation of the assumptions of parametric analysis.⁶² Parametric techniques of hypothesis testing assume, for example, that all data observations are independent, are drawn from a normally distributed population, that variables have been measured in "at least" an interval scale, and that the populations have a known and similar variance.⁶³

Nonparametric techniques of hypothesis testing do not require these specifications about the parameters of the population from which the sample is drawn. Moreover, nonparametric tests do not require measurement so strong as that required for parametric tests (i.e., nonparametric tests are applicable to data measured at the nominal and ordinal level) and they are uniquely suited to the behavioral sciences.⁶⁴ This suitability is mainly due to the fact that behavioral scientists rarely achieve the strength of measurement which permits the meaningful use of parametric testing.⁶⁵

⁶² For an indepth explanation of measurement strength and the assumptions of parametricity see: Sidney Siegel, Nonparametric Statistics For The Behavioral Sciences, McGraw-Hill Book Company, Inc., New York, N.Y., 1956, pp. 18-34; and Walter B. Wentz, Marketing Research: Management and Methods, Harper and Row Publishers, New York, N.Y., 1972, pp. 277-281.

⁶³ Siegel, op. cit.

⁶⁴ Ibid.

⁶⁵ Ibid.

SUMMARY STATEMENT

The methodology of this research effort and the statistical tools utilized were designed to determine if any relationship exists between personality structure and product awareness, and personality structure and purchase behavior. The procedures and techniques described in this chapter were those used in investigating the existence of such a relationship. Every effort has been taken in the design of this study to attempt to assure the reliability of its results.

The following chapter of this research presents the data analysis. The final chapter will present the conclusions of the research effort and suggest possible areas for future research.

CHAPTER V

ANALYSIS OF THE DATA

Upon completion of the survey, the next step in the study was to conduct an analysis of the data obtained. The purpose of this analysis was to determine if personality structure, as defined previously in this dissertation, was a significant variable in determining relative new product awareness and purchase behavior patterns.

The analysis of the obtained data is presented in this chapter in two sections. The first section presents the general descriptive statistics generated by the analysis. The second section presents the statistical analysis of the data utilizing the statistical techniques discussed in Chapter IV. In this second section, the data is analyzed from several perspectives using each of the statistical tools described. For example, the Kolmogorov-Smirnov test was applied to the entire data set and afterwards to selected samples within the data set. Both of these analyses will be presented verbally, however, only the more traditional analysis using D-score extremes will be presented in detailed tabular form. This method of analyzing the dogmatism scores yields the two discrete groups which, according to test scores, may be classified as either "high" or "low" D-scorers. These groups can then be used in examining the relationships between open-closed system individuals, new product awareness, and purchase behavior patterns. It should also be noted that this method of analyzing dogmatism scores is the most widely accepted and is also the method advocated by Rokeach in his development of the

scale because it allows for identification of the high or low dogmatic individuals.¹ Following this analysis, the Spearman rank order correlations are presented and discussed in detail along with Kendall's partial correlations.

STATISTICAL DESCRIPTION OF THE SAMPLES VARIABLES

Table 5.1 presents the descriptive statistics of the sampled variables. As can be seen in columns two, four, and five, the respondent's D-scores ranged from a low of 38 to a high of 91 with a mean value of 61.8. The aided recall scores (AIDR) ranged from 9 to 17 products identified in the aided recall section of the instrument. The aided recall scores had a mean of 14.22 which shows a high awareness of new products on the part of the respondents. On the average, the respondents were aware of 14 of the 17 products being studied. The unaided recall scores (UNAIID) ranged from 1 to 15 products with a mean value of 6.78. These scores also represent a high degree of awareness of new products in the marketplace. The additional new product scores (ADDP) ranged from 0 to 10 products identified beyond those being studied in this research. The additional new products identified scores exhibited a mean value of 3.15. Across the sample, most every respondent identified at least 3 new products beyond the 17 being specifically studied. The number of products actually purchased (N) by the respondents ranged from 0 to 12, with a mean of 8.63. Effectively, the respondents, on the average, had purchased

¹ Milton Rokeach, The Open and Closed Mind, Basic Books, Inc., New York, N.Y., 1960.

TABLE 5.1

STATISTICAL DESCRIPTION OF THE SAMPLED VARIABLES

Variable	Sample Size	Mean	Standard Deviation	Low	High
D-score	200	61.89	11.18	38.0	91.0
AIDR	"	14.22	1.99	9.00	17.0
UNAID	"	6.78	2.86	1.00	15.0
ADDP	"	3.15	2.04	0.00	10.0
N	"	8.63	2.74	.722	12.0
NPA	"	1.18	.186	0.00	1.58
PB	"	.18	.115	0.00	.578

one-half of the products presented in the aided recall section of the research instrument.

The new product awareness scores ranged from 1.88 to .722, while purchase behavior scores ranged from 0.0 to .578. These scores were, as previously shown, derived from the aided recall, unaided recall, and additional new products scores. In effect, the new product awareness index was derived by dividing the sum of the aided recall, unaided recall, and additional products identified scores by the total number of products being studied plus the additional products identified score $(\frac{x + y + z}{p + z})$. The purchase behavior index was derived by dividing the number of products actually purchased by the number of products being studied plus the additional products identified score $(\frac{N}{p + z})$.

Since there were no raw scores presented in the Muse and Kegerreis² study of new product awareness and purchase behavior in relation to personality content variables, there exists no basis for comparison of the scores with existing empirical results. One must, however, given the derived scores, consider the new product awareness and purchase behavior scores to be viable for analysis in this study.

With respect to the single demographic variable considered in this study (the existence of children in the family), 127 families had no children while 73 families had one or more children. These

² William Muse and Robert Kegerreis, "New Product Awareness and Purchase Behavior," Marquette Business Review, Vol. 16, No. 1, 1972, pp. 19-28.

figures represent 63.5 percent and 36.5 percent of the sample respectively.

STATISTICAL ANALYSIS OF THE DATA

Following the statistical description of the respondents sampled, the data obtained was analyzed using the procedures discussed in Chapter IV. The first test to be employed was the Kolmogorov-Smirnov two-sample test of significance. This test is concerned with the relative agreement between two cumulative distributions (i.e., the agreement between two sets of sample values along any number of identified variables). Briefly, the test involves specifying the frequency distribution which would occur under the theoretical distribution and comparing that with the observed frequency distribution. The theoretical distribution represents what would be expected under the null hypothesis (H_0). The point at which these two distributions show the greatest divergence is determined, and if they are "too far apart" at any point, that is to say, if a large enough deviation exists between the two sample distributions then H_0 is rejected.

To apply the Kolmogorov-Smirnov two-sample test, one first sets up a frequency distribution for each of the samples, using the same intervals for both distributions. For each interval, one step function is then subtracted from the other. The test focuses on the "largest" of the observed deviations.

For example, if one lets $S_{n_1}(X)$ = the observed cumulative step function of one of the samples and $S_{n_2}(X)$ = the observed cumulative

step function of the other sample, then the two-sample test focuses on;

$$D = \text{maximum } [S_{n_1}(X) - S_{n_2}(X)]$$

In this research effort, the Kolmogorov-Smirnov test was applied first to the entire sample using the specified procedures for large samples (i.e., n_1 and $n_2 > 40$).³

Utilizing this procedure, the respective sample sizes were determined to be $n_1 = 95$ and $n_2 = 105$, with n_1 being the low dogmatic group. These sample sizes are determined according to whether the respondents scored at or above the median on the dogmatism test (in this case the median was 61) or below the median score on the dogmatism test.⁴

Using the Kolmogorov-Smirnov procedure, the two respective samples representing high dogmatics and low dogmatics were compared with respect to their aided recall scores, unaided recall scores, additional new products identified scores, products purchased scores, and new product awareness and purchase behavior scores. In no case were significant differences yielded between open and closed minded individuals with respect to the variables under consideration.

³ For an indepth discussion of these procedures see: Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences, McGraw-Hill Book Company, Inc., New York, N.Y., 1956, pp. 130-136.

⁴ Ibid.

This lack of significant results, however, was expected utilizing the entire range of dogmatism scores, which is quite an unorthodox procedure in research utilizing the dogmatism scale. Typically, in using this scale, the respondent scores are split into the highest and lowest groups for analysis. This allows the researcher to deal with the maximum difference in D-scores in relation to other identified variables. It was, however, believed by the researcher that if significant differences could in fact be identified using the entire range of D-scores that the research would be considerably more credulent.

Following this large sample test, the researcher returned to the analysis utilizing the more traditional method of splitting the scores into groups representing the highest scorers (highly dogmatic) and the lowest scorers (low dogmatic). This procedure breaks the sample into, as previously pointed out, two extreme groups and should allow for identification of any significant differences between the identified extremes.

The splitting into categories was accomplished by seeking discrete numerical breaks near the upper and lower extremes of the entire distribution. This led to the identification of two groups of 21 respondents. Although this selection procedure may appear subjective, it is no more subjective than selecting some arbitrary top and bottom percentage of the sample as is traditionally done. In the studies reported in Chapter III of this dissertation, the selection procedure for "high" and "low" D-scorers ranged from selecting the top and bottom 10-15 percent, to simply selecting the top three

and bottom three D-scorers from a very small sample. Effectively, the selection of high and low D-scorers by seeking discrete numeral breaks in the distribution should be acceptable if the only objective is to in some manner subjectively differentiate between high and low D-scorers.

In this case, discrete breaks were visible in the frequency distribution and the extremes represented two samples of 21 respondents as previously stated. The Kolmogorov-Smirnov test for small samples was then applied to these two groups and the variables under consideration.

The test for small samples is procedurally the same as the large sample test except that where n_1 and n_2 are ≤ 40 a table of critical values is produced for the analysis. This test requires that any value of K_D , which is defined as the numerator of D , equal or exceed the table values presented in Table 5.2 for the relationship to be considered significant (i.e., to allow for rejection of H_0). The analysis was carried out for each of the variables under consideration. All tests were one-tailed under the assumptions of H_0 that all variable values for the low dogmatic group were stochastically larger than the values for the high dogmatic group.

In presenting the analysis, Table 5.3 describes the frequency distribution of scores for the low dogmatics relative to their aided recall scores. Table 5.4 presents the frequency distribution of scores for the high dogmatics relative to their aided recall scores.

The Kolmogorov-Smirnov analysis of the two groups appears in Table 5.5. Taking the value of $K_D = -6$ to Table 5.2, it is clear

TABLE 5.2

TABLE OF CRITICAL VALUES OF K_D IN THE KOLMOGOROV-
SMIRNOV TWO-SAMPLE TEST
(Small samples)

N	One-tailed test	
	$\alpha = .05$	$\alpha = .01$
3	3	--
4	4	--
5	4	5
6	5	6
7	5	6
8	5	6
9	6	7
10	6	7
11	6	8
12	6	8
13	7	8
14	7	8
15	7	9
16	7	9
17	8	9
18	8	10
19	8	10
20	8	10
21	8	10
22	9	11
23	9	11
24	9	11
25	9	11
26	9	11
27	9	12
28	10	12
29	10	12
30	10	12
35	11	13
40	11	14

Source: Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences, McGraw-Hill Book Company, Inc., New York, N.Y., 1956, p. 278.

TABLE 5.3

AIDED RECALL SCORES OF LOW DOGMATIC SUBJECTS

AIDR	Frequency
11	2
12	3
13	2
14	8
15	1
17	4
17	1
<u> </u>	<u> </u>
TOTAL	21

TABLE 5.4

AIDED RECALL SCORES FOR HIGH DOGMATIC SUBJECTS

AIDR	Frequency
11	2
12	1
14	4
15	2
16	6
17	8
<u> </u>	<u> </u>
TOTAL	21

TABLE 5.5

KOLMOGOROV-SMIRNOV TEST OF SIGNIFICANCE
BETWEEN D-SCORE AND AIDED RECALL
(Variable; AIDR)

AIDR	11	12	13	14	15	16	17
High D	2	1	4	2	6	6	0
Low D	2	3	2	8	1	4	1
D	0	-2	2	-6	5	2	0

$$D = \text{maximum} = -6/21; K_D = -6$$

that there is no significant differences between the high dogmatics and low dogmatics relative to their aided recall scores. The relationship is, however, in the predicted direction even though it is insignificant. This result requires that the null hypothesis $H_{1.2}$ be accepted. This hypothesis stated that high D scorers do not exhibit lower aided recall scores than low D scorers. The analysis shows that, in effect, there are no significant differences between high D scorers and low D scorers relative to their aided recall scores.

The same analysis was carried out for the remaining variables under consideration. Table 5.6 shows the frequency distribution of low dogmatics relative to their unaided recall scores. The high dogmatic group unaided recall scores are shown in Table 5.7.

TABLE 5.6

UNAIDED RECALL SCORES FOR LOW DOGMATIC SUBJECTS

UNAI	Frequency
2	3
4	2
5	4
6	5
7	1
8	3
9	3
<u> </u>	<u> </u>
TOTAL	21

TABLE 5.7

UNAIDED RECALL SCORES FOR HIGH DOGMATIC SUBJECTS

UNAI	Frequency
2	3
4	3
6	2
7	5
8	3
10	3
12	1
13	1
<u> </u>	<u> </u>
TOTAL	21

Table 5.8 presents the Kolmogorov-Smirnov test of significance between the D-scores and unaided recall scores of the respondents.

TABLE 5.8

KOLMOGOROV-SMIRNOV TEST OF SIGNIFICANCE
BETWEEN D-SCORES AND UNAIDED RECALL
(Variable; UNAID)

UNAID	2	3	4	5	6	7	8	9	10	11	12	13
High D	3	0	3	0	2	5	3	0	3	0	1	1
Low D	3	0	2	4	5	1	3	3	0	0	0	0

D	0	0	1	0	-3	4	0	0	3	0	1	1

$$D = \text{maximum} = 4/21; K_D = 4$$

Again, taking the value of K_D and referring to Table 5.2 one can see that there are no significant differences at either .01 or .05 between open and closed minded individuals with respect to their unaided recall scores. In fact, even the direction of the relationship under H_0 is not in the hypothesized direction (i.e., that low dogmatics should score higher than high dogmatics). These results require acceptance of the null hypothesis $H_{1.1}$ in the research. This hypothesis stated that high D scorers do not exhibit lower unaided recall scores than low D scorers. The analysis shows that, in effect, there are no significant differences between high D scorers and low D scorers relative to their unaided recall scores.

The same analysis was applied to the respondents additional new products identified scores. Table 5.9 and 5.10 show the respective frequency distributions of the low and high dogmatics relative to their additional new products identified scores.

The Kolmogorov-Smirnov analysis for this variable appears in Table 5.11. Once again the value of K_D fails to provide any significant results. There are no significant differences between high dogmatics and low dogmatics relative to their respective additional new products identified scores. These results require the acceptance of hypothesis $H_{1.3}$. This hypothesis stated that high D scorers do not exhibit lower additional new products identified scores than low D scorers. The analysis shows that, in effect, there are no significant differences between high D scorers and low D scorers relative to their additional new products identified scores.

Given the acceptance of these three sub-hypotheses, it would seem that the first major hypothesis H_1 must also be accepted as stated in the null form. That is, that high D scorers do not differ significantly from low D scorers in their measures of new product awareness.

The Kolmogorov-Smirnov analysis shown in Table 5.12 substantiates the previous statements. There are no significant differences between the high D scorers and the low D scorers relative to their new product awareness indices.

The relationship is in the predicted direction, that is, high D scorers tend to exhibit a lower awareness of new products, but the relationship fails to prove significant at either .01 or .05.

TABLE 5.9

ADDITIONAL NEW PRODUCT SCORES FOR LOW DOGMATIC SUBJECTS

ADDP	Frequency
0	2
1	4
2	6
3	3
4	4
5	1
6	1
<hr/> TOTAL	<hr/> 21

TABLE 5.10

ADDITIONAL NEW PRODUCT SCORES FOR HIGH DOGMATIC SUBJECTS

ADDP	Frequency
0	3
1	2
2	3
3	1
4	3
5	3
6	4
7	1
8	1
<hr/> TOTAL	<hr/> 21

TABLE 5.11

KOLMOGOROV-SMIRNOV TEST OF SIGNIFICANCE BETWEEN D-SCORES
AND ADDITIONAL NEW PRODUCTS IDENTIFIED SCORES

(Variable; ADDP)

ADDP	0	1	2	3	4	5	6	7	8
High D	3	2	3	1	3	3	4	1	1
Low D	2	4	6	3	4	1	1	0	0

D	1	-2	-3	-2	-1	2	3	1	1

$$D = \text{maximum} = -3/21; K_D = -3$$

In examining the second major hypothesis relative to actual purchase behavior patterns, the same procedure was utilized as that in testing the first major hypothesis. The sub-hypothesis was tested first, then the major hypothesis was tested.

The sub-hypothesis ($H_{2.1}$) relative to actual purchase behavior patterns was that high D scorers would not exhibit significantly lower purchase behavior scores than low D scorers. The frequency distributions for the actual products purchased in the low and high D groups appears in Tables 5.13 and 5.14. The Kolmogorov-Smirnov analysis of these scores appears in Table 5.15.

The value of K_D once again proves to be insignificant. There are no significant differences between high dogmatic and low dogmatics relative to the actual number of products purchased. This result requires that hypothesis $H_{2.1}$ be accepted as stated in the

TABLE 5.12

KOLMOGOROV-SMIRNOV TEST OF SIGNIFICANCE BETWEEN D-SCORES
AND NEW PRODUCT AWARENESS INDICES
(Variable; NPA)

NPA	.823 - .894	.895 - 1.05	1.06 - 1.15	1.16 - 1.22	1.23 - 1.27	1.28 - 1.42	1.43 - 1.56
High D	2	2	3	3	3	4	3
Low D	3	4	3	4	6	2	1
D	-1	-2	0	-1	-3	2	2

$$D = \text{maximum} = -3/21; K_D = -3$$

TABLE 5.13

FREQUENCY DISTRIBUTION OF ACTUAL PRODUCTS PURCHASED
BY LOW DOGMATIC SUBJECTS

N	Frequency
0	2
1	3
2	2
3	4
4	4
5	3
6	3
<hr/> TOTAL	<hr/> 21

TABLE 5.14

FREQUENCY DISTRIBUTION OF ACTUAL PRODUCTS PURCHASED
BY HIGH DOGMATIC SUBJECTS

N	Frequency
0	3
1	4
2	3
3	1
4	3
5	4
6	2
7	1
<hr/> TOTAL	<hr/> 21

TABLE 5.15

KOLMOGOROV-SMIRNOV TEST OF SIGNIFICANCE BETWEEN HIGH D AND LOW
D SUBJECTS RELATIVE TO NUMBER OF PRODUCTS PURCHASED

N	0	1	2	3	4	5	6	7
High D	3	4	3	1	3	4	2	1
Low D	2	3	2	4	4	3	3	0
D	1	1	1	-3	-1	1	-1	1

$$D = \text{maximum} = -3/21; K_D = -3$$

null form. This hypothesis had stated that high D scorers do not exhibit a lower frequency of purchase behavior scores than do low D scorers and the analysis shows no significant differences to exist.

In testing for significant differences between overall purchase behavior scores, the Kolmogorov-Smirnov analysis again shows that no significant differences exist between high D and low D scorers relative to their purchase behavior scores. These results appear in Table 5.16. This result requires that hypothesis H_2 be accepted.

These overall results show that, within the sample utilized, there are no significant differences between open and closed minded individuals and their respective new product awareness or purchase behavior patterns in convenience goods buying. The Kolmogorov-Smirnov analysis was not shown for the single demographic being utilized due to the insufficient number of intervals for setting up

TABLE 5.16

KOLMOGOROV-SMIRNOV TEST OF SIGNIFICANCE BETWEEN HIGH D AND LOW D
SUBJECTS RELATIVE TO PURCHASE BEHAVIOR PATTERNS
(Variable; PB)

PB	0.0-.058	.059-.125	.126-.166	.167-.181	.182-.210	.211-.263	.264-.347	.348-.388	.389-.426
High D	2	2	1	4	2	2	4	3	1
Low D	3	3	5	1	4	4	1	0	0
D	-1	-1	-4	3	-2	-2	3	3	1

$D = \text{maximum} = -4/21; K_D = -4$

a distribution for analysis. This variable, and its relative impact on product awareness and purchase behavior patterns will, however, be examined in the following correlation analysis of the data.

Following the Kolmogorov-Smirnov analysis, Spearman correlation coefficients were computed for the data. Of all the statistics based on ranks, the Spearman rank correlation coefficient was the earliest to be developed and is perhaps the best known today. It is a measure of association which considers the degree of disparity between objects or individuals which are ranked in ordered series. This research effort, for example, was an attempt to determine if any significant association existed between dogmatism scores and new product awareness scores. This was only one of the relationships examined but will serve as an example for the Spearman procedure.

In computing the correlation coefficient for these variables the following procedure was used, allowing $x = X - \bar{X}$ where \bar{X} is the mean of the scores on the X variable and if $y = Y - \bar{Y}$ where \bar{Y} is the mean of the scores for the Y variable, then;

$$r_s = \frac{\sum x^2 + \sum y^2 - \sum d^2}{2 \sum x^2 \sum y^2}$$

and r_s as a solution yields the rank order correlation coefficient. In this research the Spearman procedure was accomplished using the Statistical Analysis System package available at the Louisiana State University Computer Research Center. The Spearman procedure is one of several sub-routines available in the SAS program which also

TABLE 5.17

SPEARMAN CORRELATION MATRIX FOR THE RESEARCH DATA

	D-score	AIDR	UNAID	ADDP	N	NPA	PB	Child
D-score	1.00							
AIDR	.088 ¹	1.00						
UNAID	.291 ¹	.337 ²	1.00					
ADDP	.123 ¹	.245 ²	.767 ²	1.00				
N	.089 ¹	.523 ²	.464 ²	.473 ²	1.00			
NPA	.005 ¹	.749 ²	.849 ²	.592 ²	.347 ²	1.00		
PB	.116 ¹	.296 ²	.063 ¹	.005 ¹	.621 ²	.192 ²	1.00	
Child	.008 ¹	.108 ¹	.090 ¹	.065 ¹	.326 ¹	.116 ¹	.071 ¹	1.00

¹ insignificant at .05 and .01

² significant at .01

³ significant at .05

tests the coefficient for significance using the students t with $df = N-2$ for large samples (i.e., $n \geq 10$). The Spearman coefficients are shown for this research in Table 5.17.

As can be seen in column 1 there were no significant correlations between open and closed mindedness and any of the variables under consideration. This data supports the Kolmogorov-Smirnov analysis previously presented.

It can also be seen that no significant coefficients appear relative to the existence of children in the family and any of the variables being studied. In fact, the only variable that even approached significance, relative to those respondents with children, was the new product awareness index with a coefficient of .116 at $\alpha = .05$.

This inability to identify significant relationships between the existence of children in the family and new product awareness or purchase behavior require that the hypotheses H_3 and $H_{3.1}$ be accepted in their null form. The two hypotheses stated that the existence of children in the family do not significantly affect new product awareness scores or purchase behavior scores respectively. The Spearman analysis shows, in this instance, that the presence of children in the family did not significantly affect either the new product awareness scores or the purchase behavior scores of the respondents.

Overall, the Spearman correlation analysis supports the results generated by the Kolmogorov-Smirnov analysis. No significant

correlations exist between open-closed mindedness and new product awareness or purchase behavior.⁵

The Kendall partial correlation analysis shown in Table 5.18 further substantiates the previous findings. This particular test was performed to determine the correlation coefficients for each of the variables under study, with any potential interaction effect removed. Effectively, when correlation is observed between two variables, there is always the possibility that this correlation is due to the association between each of the two variables and a third variable. In this research, the use of the Kendall statistic will allow for computation of the correlation coefficient between dogmatism and new product awareness, with any possible bias from a high aided or unaided recall score being partialled out. The procedure for computing the Kendall partial rank correlation coefficient may be described as;

⁵ The correlation matrix does, however, show that significant relationships do exist between some of the variables under study. From Table 5.17 significant relationships can be identified between aided recall of the respondents and unaided recall, additional new products identified, new product awareness, purchase behavior, and actual products purchased. For the most part these correlation coefficients are relatively low, but were significant at $\alpha = .01$.

There also appears to be a relatively high correlation between the aided recall and new product awareness scores and there exists a relatively high correlation between unaided recall and additional new products identified and new product awareness.

These relationships, however, should not be particularly surprising. One would expect that individuals exhibiting high aided and unaided recall scores should also have high new product awareness and purchase behavior scores. It should also be expected that individuals exhibiting higher new product awareness indices would have higher purchase behavior indices.

TABLE 5.18

KENDALL PARTIAL CORRELATIONS BETWEEN DOGMATISM,
NEW PRODUCT AWARENESS AND PURCHASE BEHAVIOR

	D-score
D-score	1.00
AIDR	.065
UNAID	.019
ADDP	.086
N	.047
NPA	.001
PB	.077
Child	.007

$$\tau_{xy.z} = \frac{\tau_{xy} - \tau_{zy} \cdot \tau_{xz}}{(1 - \tau_{zy}^2) (1 - \tau_{zx}^2)}$$

with $\tau_{xy.z}$ yielding the correlate coefficient between x and y with z being partialled out or with the potential impact of z being statistically removed. As can be seen when the effect of open-closed mindedness is correlated to the other variables under study, removing any potential interaction effect, the coefficients are all reduced substantially and remain insignificant at $\alpha = .01$ or $.05$.

SUMMARY OF THE DATA ANALYSIS

The purpose of this chapter has been to provide the results of the statistical analysis of the research data. The first section provided the statistical description of the sample.

The second section presented the statistical analysis of the data obtained in the survey. In review, the following hypotheses were tested for statistically significant differences:

- H₁ High D scorers do not differ significantly from low D scorers in measures of new product awareness.
- H_{1.1} High D scorers do not exhibit lower unaided product recall scores than low D's.
- H_{1.2} High D scorers do not exhibit lower aided product scores than low D's.
- H_{1.3} High D scorers do not exhibit lower additional new product scores than low D's.
- H₂ High D scorers do not differ significantly from low D scorers in scores of purchase behavior.
- H_{2.1} High D scorers do not exhibit a lower frequency of purchase behavior scores than D's.
- H₃ The presence of children in the family do not significantly affect new product awareness scores of respondents.
- H_{3.1} The presence of children in the family do not significantly affect purchase behavior scores of respondents.

Each of the statistical techniques utilized failed to show significant relationships between the variables under study. Each of the above hypotheses were accepted, as stated, in the null form. There were no significant differences between the open-closed system individuals and their respective aided recall scores, unaided recall scores, or additional products identified scores. There were

also no significant differences between the groups new product awareness scores.

The same results were obtained relative to the respondents purchase behavior scores where no significant differences were found between the open-closed personality system individuals. It was also shown that the presence of children in the family failed to significantly affect either new product awareness or purchase behavior scores of the respondents.

Given these results, the following chapter will present an overall summary of the research and draw conclusions relative to the results of the analysis presented in this chapter. Chapter VI will also present suggestions for future research efforts into the impact of personality structure on consumptive behavior.

CHAPTER VI

SUMMARY OF THE RESEARCH, CONCLUSIONS, AND SUGGESTED FUTURE RESEARCH

The research presented in this dissertation may be broadly classified into the personality and consumer behavior area. In this context, this research represents one of many studies which have attempted to identify significant relationships between some aspect of personality and consumptive behavior.

However, the majority of these studies dealing with personality and consumptive behavior have focused on either a single personality trait (or a group of traits) and their relationship to behavior in the marketplace. By definition, these studies have dealt with personality content variables which represent only a single dimension of the individual's personality system.¹ Thus, these studies have been described as being unidirectional in nature, focusing almost entirely on content variables while ignoring the structural aspects of personality systems.²

This failure to give indepth consideration to the structural aspects of personality in relation to purchase behavior gave rise

¹ Milton Rokeach, The Open and Closed Mind, Basic Books, Inc., New York, N.Y., 1960, pp. 6-9.

² Louis K. Sharpe and Grady D. Bruce, "Components of Attitude Structure: A Comparison," in Fred Allvine (ed.), Relevance in Marketing: Problems, Research, Action, Proceedings American Marketing Association, 1971, pp. 342-345.

to this research effort. The dissertation was proposed to investigate the general premise that an analysis of personality structure might prove to be significant in aiding our understanding of certain aspects of purchase behavior.

The specific problem of the research was to determine if personality structure, as defined by Milton Rokeach,³ was a significant variable in determining product awareness and purchase behavior in convenience goods buying. Personality structure is defined as the relative openness or closedness of the individual personality system.⁴ Structure is considered the aspect of personality which bounds the individual's identifiable personality traits and is measurable with Rokeach's D-scale along with several modified versions of this scale.⁵ In this particular research a short-form scale was used which was developed specifically for field surveys.⁶

This dissertation had as its purpose, the extension of an aspect of personality, which had not been explored previously into the research of consumer purchase behavior. More specifically, the research was designed to examine personality structure in

³ Milton Rokeach, op. cit.

⁴ Ibid.

⁵ The D-scale as developed by Rokeach measures the relative openness or closedness of the individual personality system. The term dogmatism is used analogously with closed-mindedness.

⁶ Verling C. Troidahl and Fredric A. Powell, "A Short Form Dogmatism Scale for Use in Field Studies," Social Forces, Vol. 44, No. 2, (December 1965), pp. 211-215.

relation to new product awareness and purchase behavior patterns of individuals in the marketplace.

The measures of new product awareness and purchase behavior were adopted from a previous study appearing in the marketing literature.⁷ The actual data gathered to complete this dissertation was primarily empirical, with a number of secondary sources being drawn from the marketing literature to substantiate the originality of the study and to reinforce the direction of the research effort.

In the attempt to substantiate the need for the research and the viability of the research effort, it was necessary to review the critical literature in personality and purchase behavior. It was also necessary to present an indepth analysis of Rokeach's theory of open-closed personality systems and the applicability of the theory to the study of consumer behavior.

Chapter II of this study presented a review of the literature in personality and purchase behavior. Specifically, the areas reviewed consisted of personality trait and buyer behavior research, personality and product-brand preference research, and personality and adoption and diffusion research.

Utilizing this classification scheme and limiting the literature reviewed to research efforts which had included one or more personality inventories, it was shown that few, if any, significant relationships have been identified between personality content

⁷ William Muse and Robert Kegerreis, "New Product Awareness and Purchase Behavior," Marquette Business Review, Vol. 16, No. 1, 1972, pp. 19-28.

variables and purchase behavior.

Chapter III of this study presented the theory of open-closed personality systems and related literature in social psychology which might prove pertinent to marketing researchers studying consumer behavior. The definition of personality utilized in this study was shown to be a commonly accepted one. However, in the theory of open-closed personality systems, personality is conceptualized as having a definable and measurable structure. This concept of structure was shown to flow logically from the structural-functional method of theory construction so common to the social sciences, especially sociology and social psychology. Effectively, theory construction from a structural-functional perspective revolves around the identification of some of that systems structural properties. Personality structure represented the relative openness or closedness of the individual's personality system, without concern for specific content variables.⁸

In Chapter III it was shown that the theory of open-closed personality systems has been accepted as a viable theory in social psychology and has been researched in depth across a wide range of social psychological phenomena. The literature reviewed for purposes of this dissertation was limited to three areas which were believed to be particularly pertinent to marketing researchers in consumer behavior. These areas were; the impact of open-closed

⁸ Milton Rokeach, op. cit.

personality systems on learning and problem solving, on the maintenance of cognitive consistency, and on perception.

In the literature review it was shown that, overall, the closed minded system individuals are more stereotype in their thinking, they utilize fewer conceptual categories and a narrower range of information in decision-making, and lack the ability to synthesize information into meaningful wholes. It was also shown in Chapter III that the theory of open-closed personality systems represented a viable conceptualization for use in studying consumer purchase behavior.

Utilizing the empirical evidence presented in Chapter III, it was hypothesized that closed system individuals would effectively be less aware of new products in the marketplace and would not have purchased as many new products as open system individuals. Following the formulation of the hypotheses, the next step was to examine the gathered empirical data to determine if, in fact, there were significant differences between open-closed minded individuals and new product awareness and purchase behavior patterns. Chapter IV presented, in detail, the research design, methodology, and statistical techniques which were utilized in gathering and in carrying out this examination of the empirical data. In the analysis, three statistical tools were utilized. The first being the Kolmogorov-Smirnov two-sample test. This test is a commonly used nonparametric test of association when compared to the more common t-test, the Kolmogorov-Smirnov test has very high power-efficiency (about 96 percent) for small samples, and is more powerful in all

cases than either the chi-square or median test.⁹ Following this test, the Spearman rank order correlation coefficients were computed, as well as Kendall's partial rank order correlation coefficients.¹⁰

The results of the statistical analysis were presented in Chapter V. The descriptive statistics appeared first, followed by the application of the selected statistical tools to the research data. This statistical analysis represented an attempt to determine if there were identifiable significant differences in purchase behavior and product awareness patterns between open-closed personality subjects. The findings of the analysis appear in the research conclusions.

RESEARCH CONCLUSIONS

Based upon the data analysis in this research, several conclusions may be set forth. First, there are no significant differences between open and closed minded individuals relative to new product awareness, within the population sampled. There were also no significant differences in the number of products identified through aided recall, unaided recall, and in additional new products identified scores between open and closed minded individuals.

Secondly, there were no significant differences in purchase behavior (i.e., number of products purchased relative to the number

⁹ Sidney Siegel, Nonparametric Statistics, McGraw-Hill Book Company, Inc., New York, N.Y., 1956, p. 136.

¹⁰ Ibid.

of products in the respondents frame of reference) between open-closed minded individuals. In effect, closed minded respondents did not purchase significantly fewer products than open-minded respondents, as had been hypothesized.

Given the lack of significant results, these conclusions should be considered viable for the group of respondents examined. These results, however, should not be generalized to all consumer behavior in the marketplace until more comprehensive research is carried out in this particular area.

A third and final conclusion which may be drawn from the analysis is that the presence of children did not prove to be a significant variable in product awareness or purchase behavior patterns of the respondents. This result varied from research results cited previously in the research.¹¹ A possible explanation for this result might be found in the fact that most of the families surveyed were relatively young and thus would all be in the earliest stages of the family life cycle. The children would be very young and this might have served to reduce the impact of this variable.

In terms of attempting to explain the insignificance of the relationships between personality structure and new product awareness, and between personality structure and purchase behavior, two alternative explanations are possible. The first explanation is

¹¹ W.T. Anderson, Jr., "Identifying the Convenience-Oriented Shopper," Journal of Marketing Research, Vol. 8, No. 2, (May 1971), pp. 179-184.

that there is, in fact, no significant relationship between personality structure and the other variables under consideration. The second explanation would be that the data results were severely biased by some other internal or external variables not accounted for in the research.

However, given the sample used, the type of products used, the interview procedures used, and the efforts taken in attempting to minimize potential bias, it is doubted that such bias resulted from either internal or external variables. This is not to say that no possible bias was introduced or unaccounted for, but only that such potential bias should not have been so severe as to negate the research conclusions. Therefore, the first alternative explanation is felt to be the most acceptable to this researcher.

SUGGESTIONS FOR FUTURE RESEARCH

Given the results of the analysis previously presented, it would appear that future research using Rokeach's paradigm to explore new product awareness or purchase behavior patterns should be avoided. However, this researcher feels that replication of this study would be a legitimate undertaking for future research.

It is believed by this researcher that a replication of this study, using similar procedures would yield the same results, however, a non-student housewife sample should be utilized in the follow-up efforts for several reasons. First, the use of a non-student sample, given similar research findings, would strengthen the argument for using student samples in research efforts of this

nature in the future. Such results could lead to a substantial reduction in marketing research costs by allowing marketing researchers to utilize student housewives in lieu of non-student populations when exploring identified aspects of consumptive behavior.

Secondly, a replication of this study, given that similar results are found, would considerably strengthen the conclusions of this particular research relative to the impact of personality structure on product awareness, and on purchase behavior patterns.

Another potential research project evolving from this dissertation would be a reconsideration of the "product awareness leads to purchase" argument. This area was not given indepth attention in this research. In fact, it was only incidental to the study, but the relationships evolving out of the analysis are supportive of earlier arguments involving the awareness-purchase relationship.¹² This area is suggested because it is felt by this researcher that the instruments used in this study were particularly effective in measuring the various components of product awareness. Further study in this area could expand the research base and strengthen previous research conclusions in the "awareness-purchase" area.

Beyond these suggested areas, there are several other areas where Rokeach's paradigm might prove particularly applicable. For

¹² Robert J. Laujidge and Gary A. Steiner, "A Model for Predictive Measurement of Advertising Effectiveness," Journal of Marketing, Vol. 25, (October 1961), pp. 59-62; and Bardin Nelson, "Seven Principles of Image Formation," Journal of Marketing, Vol. 26, (January 1962), pp. 67-71.

example, drawing from the theoretical model and the literature base presented in Chapter III of this dissertation, it was shown that closed system individuals have a high propensity to rely on authority sources when seeking information for decision-making. Thus, it appears that personality structure is a critical variable relative to communication effectiveness, at least to the extent that a message directed toward a closed system individual or audience should come from a perceived authority source to be effective.

Given this information, marketing communication researchers should attempt to determine if these findings are applicable to promotional messages over the various media. It should be noted at this point that the question to be raised in such potential research efforts is not the familiar question of credibility. Credibility has a number of components with perceived authority or power and prestige representing only the cognitive component.¹³

Another marketing communications related area where research utilizing Rokeach's paradigm might prove fruitful would be in the study of perception. In relation to consumptive behavior, marketing researchers have concerned themselves with buyer perception

¹³ G.R. Rarick, "Effects of Two Components of Communication Credibility," unpublished paper presented to the American Association for Public Opinion Research, Asilomar, California, 1963.

especially as it relates to selective exposure to marketing communications and selective distortion of such communications.

Given the conceptual description of the closed personality system individual and the established tendency of such individuals to avoid the unknown, to adhere closely to rather conservative behavior patterns, and to rigorously avoid novel stimuli, it would seem that such individuals would engage in selective exposure to communications much more frequently than open personality system individuals. If such a tendency could be substantiated through research, then dogmatism would appear to be a useful way to assess both receptivity to new information and the probable manner in which persuasive communications might be used to generate behavioral change.

A final suggestion for potential future research using Rokeach's conceptualization of personality structure also involves the closed system individual's tendencies to avoid novel stimuli and to adhere to established behavior patterns. It would appear that Rokeach's paradigm would provide an especially viable construct to explore relative to the product adoption process and the relative rate of diffusion of new products in the marketplace. Given the description of the dogmatic individual, it would seem that such individuals would seldom, if ever, be considered either innovators or early adoptors relative to new products in the marketplace. This dimension of personality could therefore seemingly add another dimension to the classification scheme for defining the various adoptor categories.

These areas are but a few of the potential areas which could be suggested for future research. Effectively, due to the failure of marketing researchers to examine the potential impact of personality structure on purchase behavior patterns, one could designate almost any area in consumer behavior as an area for potential future research. The particular suggestions made in this chapter are based on a thorough review of the literature dealing with personality structure and should be considered in any further initial research attempts.

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APPENDIX I

THE RESEARCH INSTRUMENT: THE DOGMATISM
SCALE, PRODUCT CATEGORIES USED,
PRODUCT SELECTION PROCEDURE,
AND INTERVIEW PROCEDURES

APPENDIX I

This appendix contains the complete research instrument used in gathering the necessary data for this dissertation. The survey may be divided in two sections.

The first section of the instrument is made up of a 20-item scale designed to measure the relative openness or closedness of individual personality structure.

This section of the instrument was initially presented in Chapter I of this dissertation and discussed in detail in Chapter IV. The figures relative to the instrument's reliability and validity appear in Chapter IV.

The scale is designed as a "forced choice" or "final alternative" scale. The respondent is required to express some degree of approval or disapproval to each statement. The choices for each statement ranged from very strongly agree (scored as a six) to very strongly disagree (scored as a one). The possible range of scores ran from 20 (low dogmatic) to 120 (high dogmatic). This scale was specifically designed to measure the relative openness or closedness of individual personality structure as defined by Rokeach.

This section was designed as a forced choice scale for several reasons. First, this design makes the questionnaire relatively simple to administer. Secondly, this design is by far the least expensive and least time consuming to analyze in terms of tabulating and examining the precoded responses.

The second section of the survey was designed to obtain measures of new product awareness and purchase behavior. This section was also introduced in Chapter I and presented in detail in Chapter IV of this dissertation. In the measuring of new product awareness and purchase behavior, six product categories were utilized. These included; snack foods, coffee products, cooking and baking aids, floor care products and waxes, quick cook dinner aids, and wash aids, pre-soaks, and detergents. Seventeen products appeared within the various categories. The dates of these product's availability in the stores selected were obtained through communications with Mr. Terry Folse, General Manager, Foodtown, Inc. of Baton Rouge, La.; Mr. James Ticac, Manager, Southwest Foods, Inc. of Lafayette, La.; and Mr. Paul E. Stone of Sulphur, La., Owner and Manager of a chain of Piggly Wiggly Supermarkets. All products had been available on the shelf less than one year.

The field interviewing for this research was directed by Mrs. Joanne Berg of Baton Rouge. Mrs. Berg directs a staff of professional interviewers experienced in both telephone and field interviewing. The field instrument was presented and explained, in detail, to the interviewers selected and complete category descriptions were provided to enable the interviewers to clearly understand the nature of the product categories being utilized. The interviews were conducted between 5 p.m. and 9 p.m., to enable the field worker to contact as many residents at home as possible on their initial interview attempt. The field interviewing was completed between May 1 and May 9, 1973. The interviews were verified by Mrs. Berg, while

all tabulating was done by the author of the dissertation.

RESEARCH SURVEY

INSTRUCTIONS

This research survey is in two parts. The first part is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement according to how much you agree or disagree with it. Please mark every one.

The second part of the study attempts to determine certain facts regarding your awareness and purchase of new products. In this part of the study you will be aided by the researcher. Please attempt to give as accurate a response as you can.

1. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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2. My blood boils whenever a person stubbornly refuses to admit he's wrong.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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3. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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4. Most people just don't know what's good for them.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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5. Of all the different philosophies which exist in this world there is probably only one which is correct.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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6. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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7. The main thing in life is for a person to want to do something important.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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8. I'd like it if I could find someone who would tell me how to solve my personal problems.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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9. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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10. Man on his own is a helpless and miserable creature.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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11. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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12. Most people just don't give a "damn" for others.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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13. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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14. It is often desirable to reserve judgment about what's going on until one had had a chance to hear the opinions of those one respects.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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15. The present is all too often full of unhappiness. It is only the future that counts.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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16. The United States and Russia have just about nothing in common.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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17. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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18. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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19. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
-------------------------------	--------------	--------------------------	-----------------------------	-----------------	----------------------------------

20. It is better to be a dead hero than to be a live coward.

<u>very strongly</u> agree	<u>agree</u>	<u>slightly</u> agree	<u>slightly</u> disagree	<u>disagree</u>	<u>very strongly</u> disagree
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UNAIDED RECALL SURVEY

I am now going to give you a product category and ask if you are aware of any new products in this category. For example, I will give you a product category such as coffee, as I give you each product category if you are aware of a new product in this category, please state the name of the product. This procedure will be done for six different product categories.

SNACK FOODS	WASH AIDS, PRE-SOAKS, AND DETERGENTS	QUICK-COOK DINNER AIDS	FLOOR CARE PRO- DUCTS AND WAXES	COOKING AND BAKING AIDS	COFFEE PRODUCTS

AIDED RECALL AND PURCHASE SURVEY

I am now going to give you a list of products separated into six product categories. For each product, please mark the appropriate response regarding your awareness and purchase patterns.

SNACK FOODS

	<u>Aware of</u>	<u>Purchase</u>
General Mills - "Chipos"	yes___ no___	yes___ no___
Nabisco - "Korkers"	yes___ no___	yes___ no___
Hunts' - Fruit Cup	yes___ no___	yes___ no___

WASH AIDS, PRE-SOAKS,
AND DETERGENTS

Hosiery Guard	yes___ no___	yes___ no___
Cling-Free Anti-Static Fabric Spray	yes___ no___	yes___ no___

QUICK-COOK DINNER AIDS

Lipton's Cup-A-Soup	yes___ no___	yes___ no___
Betty Crocker Tuna-Helper	yes___ no___	yes___ no___
Hunts' Skillet Dinners	yes___ no___	yes___ no___
Betty Crocker Hambruger-Helper	yes___ no___	yes___ no___

FLOOR CARE PRODUCTS AND WAXES

Johnson's Step-Saver	yes___ no___	yes___ no___
Johnson's Future	yes___ no___	yes___ no___
Beacon Mop-N-Glo	yes___ no___	yes___ no___

COOKING AND BAKING AIDS

	<u>Aware of</u>	<u>Purchase</u>
Reynolds - Brown-N-Bag	yes___ no___	yes___ no___
Roast-N-Boast	yes___ no___	yes___ no___

COFFEE PRODUCTS

Postum Decafinated Coffee Drink	yes___ no___	yes___ no___
Java Instant Coffee	yes___ no___	yes___ no___
Max-Pac	yes___ no___	yes___ no___

APPENDIX II

STATISTICAL TECHNIQUES UTILIZED IN THE RESEARCH

APPENDIX II

The research in this dissertation represents an attempt to determine the acceptability of several hypotheses which describe potential relationships between personality structure and product awareness and personality structure and purchase behavior patterns. Like most research in the behavioral sciences there were a number of alternative statistical tests available for use in testing the acceptability of the research hypotheses. The primary objective in selecting the statistical tests to be utilized was to select the most powerful tests available to allow for rejection of the null hypotheses if they were, in fact, false.

However, in statistical testing, the most powerful tests are those which have the most extensive assumptions. For example, all parametric tests have a variety of strong assumptions underlying their use. The conditions which must be satisfied for use of parametric tests are at least these:¹

1. The observations must be independent.
2. The observations must be drawn from a normally distributed population.
3. The variables involved must be measured in at least an interval scale.
4. The populations must have a known variance.

¹ Sidney Siegel, Nonparametric Statistics For The Behavioral Sciences, McGraw-Hill Book Company, Inc., New York, N.Y., 1956, pp. 18-31.

5. The means of these normal populations must be linear combinations of effects due to columns or rows. That is, they must be additive.

If any of these conditions are not met then parametric statistical techniques are invalid for analysis of gathered empirical data. In this research there were no assumptions made about the population's distribution, the observations were not randomly selected, only ordinal measurement strength was attained, and no strict assumptions were made regarding the population's variances.

Thus, the use of nonparametric statistical tools were required in this research. The tools selected for use are discussed in the following sections of this Appendix.

THE KOLMOGOROV-SMIRNOV TWO-SAMPLE TEST

The Kolmogorov-Smirnov two-sample test is used to test the prediction that the scores of an identified group will be significantly different from the scores of a second identified group. Thus, the test is concerned with the relative agreement between two sets of sample values along any number of identified variables.

Briefly, the test involves specifying the frequency distribution which would occur under the theoretical distribution and comparing that with the observed frequency distributions. The point at which the two distributions show the greatest divergence is determined, and if they are "too far apart" at any point, that is to say if a large enough deviation exists between the two sample distributions, then H_0 is rejected.

To apply the Kolmogorov-Smirnov test, one first sets up a frequency distribution for each of the variables under study, in each of the samples, using the same intervals for both distributions. For each interval, one step function is then subtracted from the other.

For example, if one lets $S_{n_1}(X)$ = the observed cumulative step function of one of the samples and $S_{n_2}(X)$ = the observed cumulative step function of the other sample, then the two-sample test focuses on;

$$D = \text{maximum } [S_{n_1}(X) - S_{n_2}(X)]$$

In testing for significance, with samples of 40 or less it is only necessary that the researcher take the value of K_D , defined as the numerator of D , to a table of critical values available in most nonparametric statistical tests, and presented in the research as Table 5.2.

THE SPEARMAN RANK ORDER CORRELATION PROCEDURE

The Spearman correlation coefficient represents a measure of association between variables. This procedure was the earliest correlation techniques, based on ranks, to be developed and is widely used in research in most of the social science disciplines.

Procedurally, the Spearman procedure measures the various differences between sets of rankings as an indication of the degree of disparity between the stipulated rankings. In computing the Spearman coefficient one sets $x = X - \bar{X}$, where \bar{X} is the mean of the scores on

the X variable, and $y = Y - \bar{Y}$, where \bar{Y} is the mean of the scores on the Y variable, then the general expression for Spearman's coefficient is;

$$r_s = \frac{\Sigma x^2 + \Sigma y^2 - \Sigma d^2}{2 \Sigma x^2 \Sigma y^2}$$

To determine r_s manually, a simplified procedure and formula is available. To compute r_s , make a list of the N subjects. Next to each subject's entry, enter his rank for the X variable and his rank for the Y variable. Determine the various differences between these values (d_i) and square each d_i . Then sum all values of d_i^2 and enter this value into the formula;

$$r_s = \frac{1 - \frac{6 \sum_{i=1}^N d_i^2}{N^3 - N}}{1}$$

where N equals the number of subjects under study.

In this research the Spearman statistic was computed using the statistical analysis system package available through the Louisiana State University Computer Research Center.

THE KENDALL PARTIAL RANK CORRELATION COEFFICIENT

When correlation is observed between two variables, there is always the possibility that such correlation is due to the

association between the two variables and a third variable. In instances where removal of the impact of the third variable is desired, the methods of partial correlation should be used. In effect, partial correlation is used when research has generated three or more sets of measures that may be related, and the researcher wishes to find the relationship between any two with the relationship effect of the third taken out of both variables.

The general notation for Kendall's partial correlation (τ) is $\tau_{xy \cdot z}$, which is read as the partial correlation between variables x and y with the relationship effects of z taken out. The formula used in this research to generate the Kendall coefficient was;

$$\tau_{xy \cdot z} = \frac{\tau_{xy} - \tau_{zy} \tau_{xz}}{(1 - \tau_{zy}^2) (1 - \tau_{zx}^2)}$$

Effectively the Kendall coefficients were computed off of the Spearman coefficients in this research. They could have just as easily been computed off of Kendall's rank correlation coefficients but Spearman's statistic is the more powerful of the two.

VITA

Lawrence Milton Richard was born on December 26, 1945, in Lake Charles, Louisiana. He was reared in Lake Charles and Sulphur, Louisiana, and was graduated from Sulphur High School in May, 1964.

In September, 1964, he entered Louisiana State University in Baton Rouge, Louisiana, and majored in International Trade and Finance. After graduating from Louisiana State University in January, 1969 with a Bachelor of Science degree, he entered the graduate school at Louisiana State University and was graduated with a Master of Business Administration degree in May, 1971.

In the Fall of 1971, he became a doctoral student at Louisiana State University and majored in Marketing while minoring in Management and Sociology. He is currently a candidate for the Doctor of Philosophy degree in Marketing at Louisiana State University.

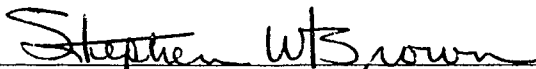
EXAMINATION AND THESIS REPORT


Candidate: Lawrence Milton Richard

Major Field: Marketing

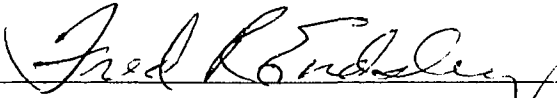
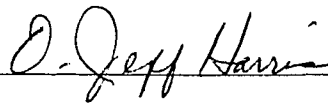
Title of Thesis: An Analysis of the Relationship Between Personality Structure,
New Product Awareness, and Purchase Behavior in Convenience
Goods Buying.

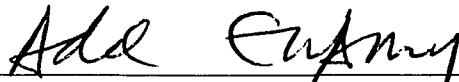
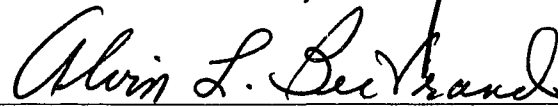
Approved:


Major Professor and Chairman


Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

June 29, 1973